PACKAGE engineering

Organizing for package development

An expert's view of setting up a package development department and laboratory — with attention to the techniques of managing the packaging function and the subtleties of making package changes. (See page 25)

Problems of packaging line personnel

Taking a close look at the human side of the packaging operation and reviewing the relationships of line workers with their foremen, superintendents, and top executives, with ideas for improving these relationships. (See page 30)

A way to determine filling line speed

Using mathematical and engineering calculations to determine line speed, with attention to actual conditions of day-to-day plant operations and step-by-step procedures. (See page 49)

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APRIL 1957

VOLUME 2 • NUMBER 4

How to *Explore* new packaging techniques WITHOUT CAPITAL INVESTMENT

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PACKAGE engineering

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April 8-11. American Management Association national packaging conference, Palmer House, Chicago. Contact: John A. Warren, American Management Association, 1515 Broadway, New York 36, New York. *Telephone: Judson 6-8100.*

April 8-11. American Management Association national packaging exposition, International Amphitheatre, Chicago. Contact: John A. Warren, American Management Association, 1515 Broadway, New York 36, New York. *Telephone: Judson 6-8100.*

April 23-25. Research and Development Associates, Food and Container Institute annual meeting, Richmond, Virginia. Contact: Rohland A. Isker, secretary, Research and Development Associates, Food and Container Institute, 1819 West Pershing Road, Chicago 9, Illinois. *Telephone: Lafayette 3-5500, extension 4262.*

May 12-16. Institute of Food Technologists annual meeting, William Penn Hotel, Pittsburgh. Contact: Charles S. Lawrence, executive secretary, Institute of Food Technologists, 176 West Adams Street, Chicago 3, Illinois. *Telephone: Andover 3-6268.*

October 28-30. Packaging Institute, 19th annual forum, Hotel Statler, New York Contact: Charles A. Feld, executive director, Packaging Institute, 342 Madison Avenue, New York 17, New York. *Telephone: Murray Hill 7-8875.*

October 28-31. Society of Industrial Packaging and Materials Handling Engineers, 12th national industrial packaging and handling exposition and SIPMHE short course, Atlantic City Auditorium, Atlantic City, New Jersey. Contact: C. J. Carney Jr., managing director, Society of Industrial Packaging and Materials Handling Engineers, 111 West Jackson Blvd., Chicago 4, Illinois. *Telephone: Harrison 7-6123.*

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Reader service card inside back cover

Our December 1957 issue will carry a cumulative editorial index for the year listing our feature articles by subject, author, and other headings.

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A note from the Publisher

Living as we are, in an age of speed, confusion, and complications, even going to a trade show can become a "production" — and especially a show the size of the National Packaging Exposition which is being held in Chicago's International Amphitheatre April 8 to 11. A little planning done ahead of time can make your trip to the show pleasant, productive, and genuinely interesting.

There will be nearly 400 exhibitors — all of which could not possibly interest you personally — or have a direct bearing on your job, your company, or your company's packaging problems that are your direct concern. A little planning done before hand to decide which exhibits are of special interest to you will save you time and energy at the show, and will allow you to benefit from an organized plan of seeing the show based on your needs and your particular packaging problems.

PACKAGE ENGINEERING has a section in this issue which we hope will make your visit to the Packaging Show more profitable by enabling you to select the exhibits that are pertinent to you before you go.

A listing of the exhibitors at the show starts on page 57, with a thumbnail description of what is being displayed in each exhibit. Go through these listings and check off exhibits that are of particular interest to you, then go through the advertising pages of PACKAGE ENGINEERING's March and April issues, as many exhibitors have ads telling more about their exhibits and the products they manufacture.

Having decided which exhibits are of particular interest to you, check them on the removable pink insert that appears as the center-spread. This pulls out and you can take it along with you as your show guide and reminder. This section also has each exhibitor's hotel headquarters, as well as hotel addresses and phone numbers, and will be invaluable in locating people "before and after hours".

Another little time saver — have your secretary fill out the advance registration card bound into this issue and bring it along too. Sometimes the registration lines at the show get long, and having a badge already filled out may save you a little time.

While all these "pearls of wisdom" sound elementary, you will get a lot more out of the show if you plan your trip. Since this is the only packaging show being held this year, it is quite probable that the 30,000-plus attendance record of 1955 will be broken. With a crowd this size, you have to be selective.

One vital statistic — If you tried to cover every display, and used every minute that the show is open, you would have something under five minutes per display. It's a losing battle, and obvious why we stress your seeing FIRST the exhibits of special interest to you, then using whatever time is left for exhibit "window shopping". You'll be time and money ahead by concentrating your efforts on the products that will help you do a better packaging job for your company.

Angus J. Ray
Publisher

PACKAGE engineering

AN ANGUS J. RAY PUBLICATION

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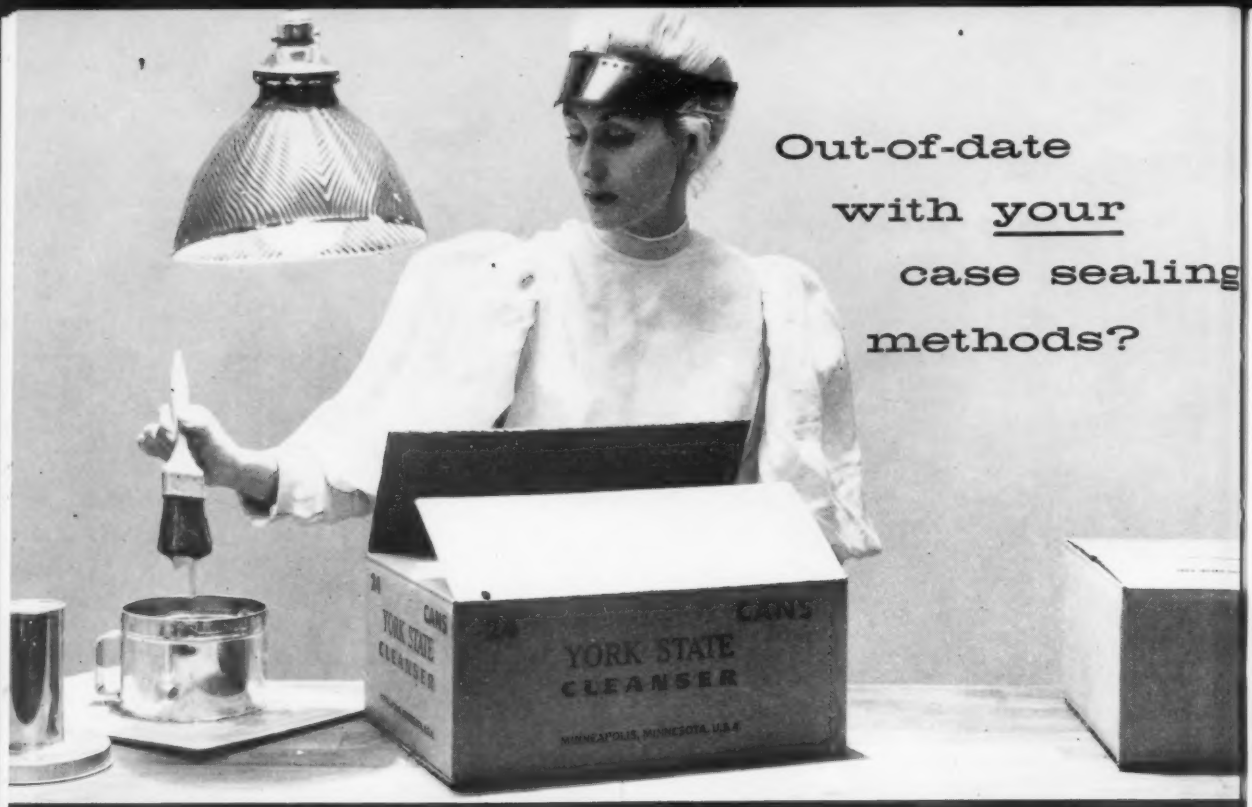

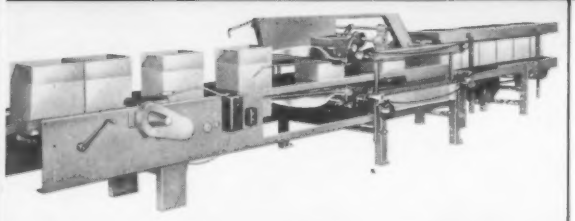

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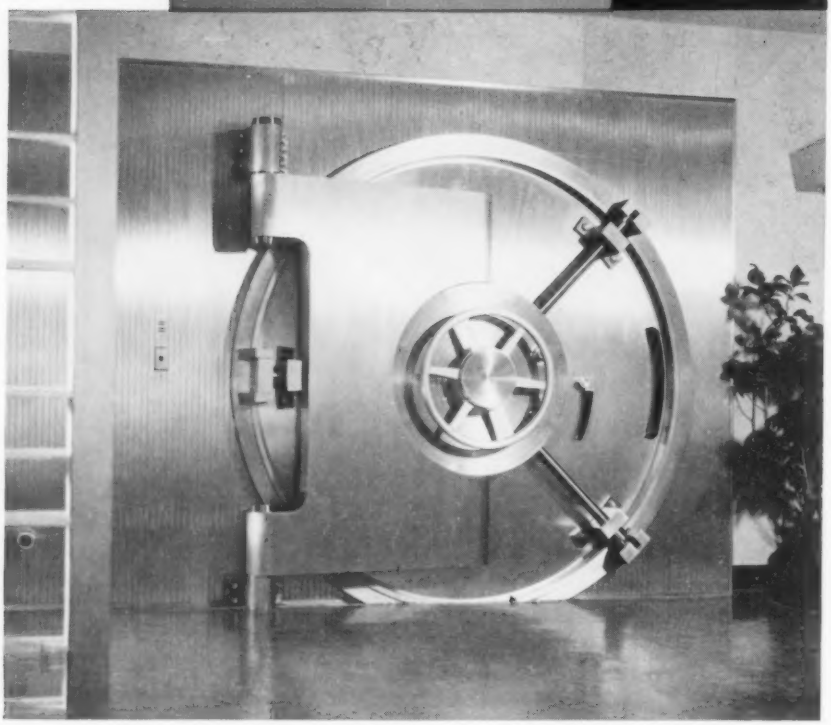

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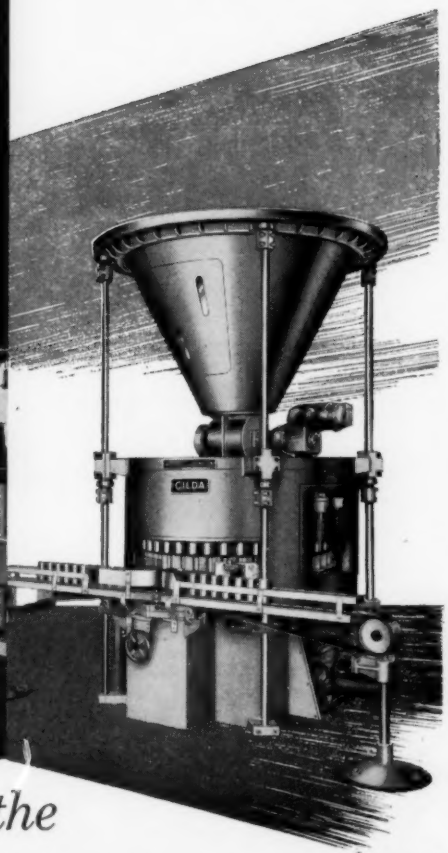

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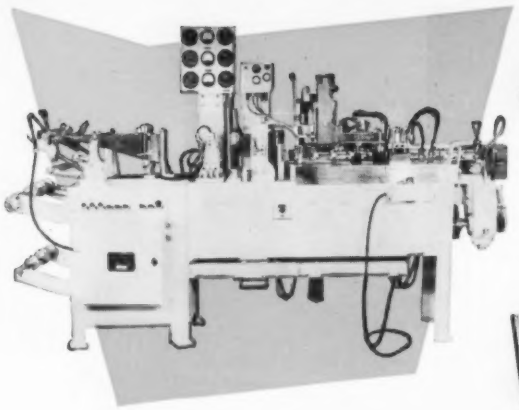

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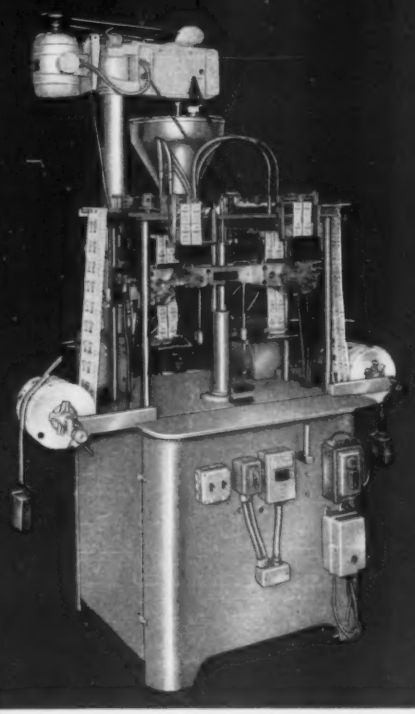

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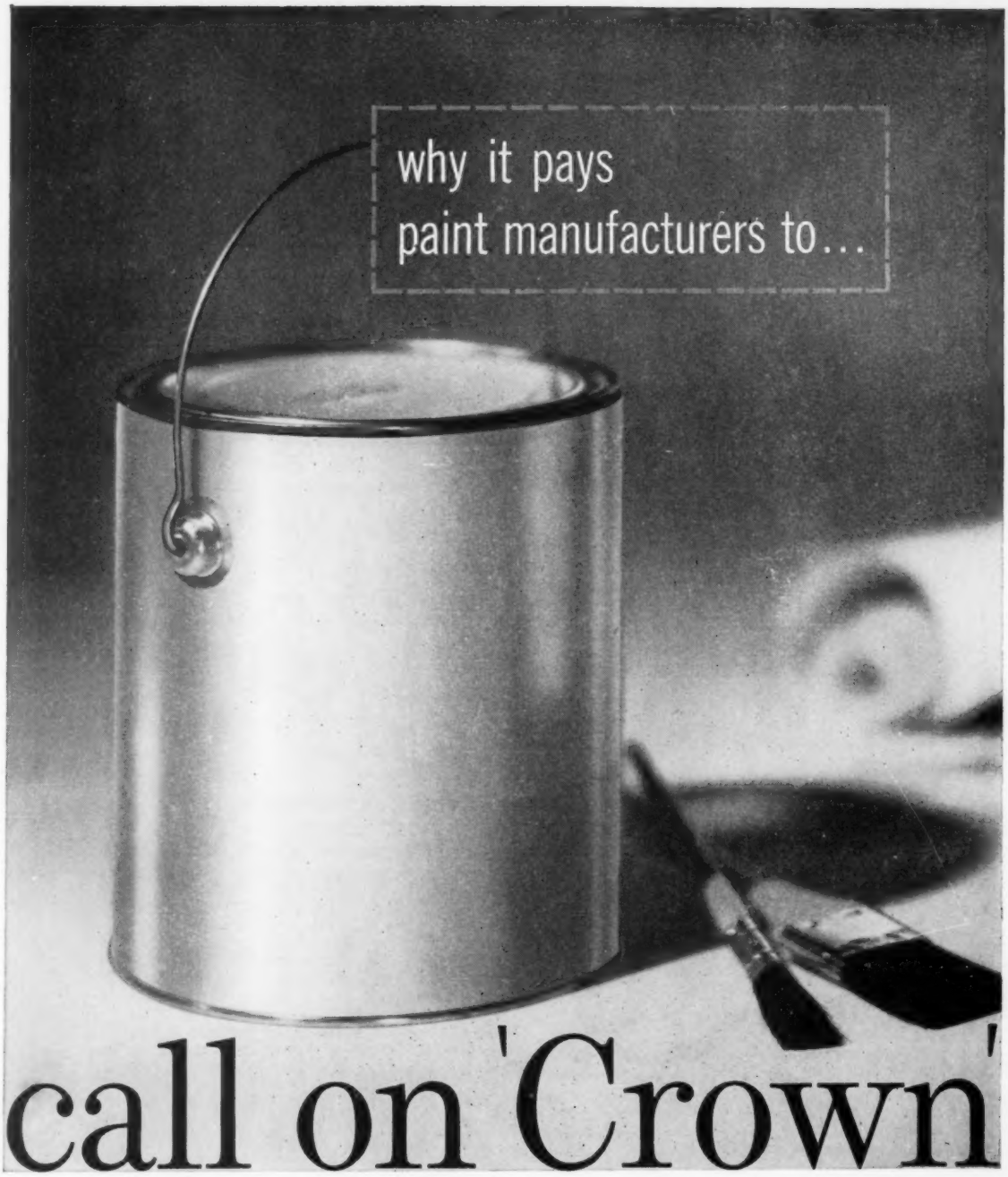

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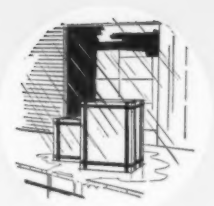

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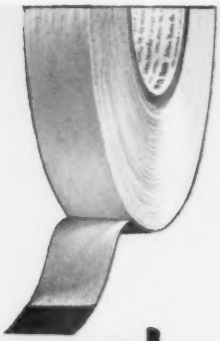

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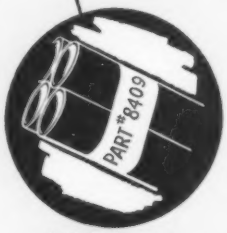

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Now one man can do these strapping jobs quickly by hand or with a simple tape dispenser —without cutting or marring surfaces: packaging, palletizing, bundling and reinforcing (perfect for tear stripping, too). Ask your Dutch Brand man for a demonstration. Write today for free "new idea" book giving data and dozens of typical uses.

Write for booklet

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DUTCH BRAND PRODUCTS
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FULLY-PACKAGED by Pneumatic

View of packaging line at Chicago plant of ECONOMICS LABORATORY, INC. Cartons are formed, bottom sealed and automatically filled on these Pneumatic machines.

SOILAX lives brilliantly up to its maker's claim that "a little does a lot". And, just as efficient as the product itself is the method of packaging it, used by ECONOMICS LABORATORY, Inc. in their Chicago plant.

Pneumatic's remarkable, newly developed PNEUMATRON machine does the weighing and filling part of the job with speed and fractional ounce accuracy . . . using a revolutionary, instantaneous "air jet" pressure principle.

SOILAX, like FINISH & ELECTRASOL for electric dishwashers and the many other fine products of this company, is packaged in cartons which are also formed, bottom sealed and top closed on Pneumatic's machines.

Pneumatic's advanced design and precision construction pays off handsomely in "lower cost per container" operation . . . a fact that America's leading producers of packaged and bottled products have learned through experience. They use their knowledge, to their individual advantage and profit, by standardizing, in large part, on Pneumatic machines. Bear that in mind, when you need equipment of this type.

PNEUMATIC SCALE CORP., LTD., 77 Newport Ave., Quincy 71, Mass. *Also: New York; Chicago; Dallas; San Francisco; Los Angeles; Seattle; Leeds, England. Canadian Division: Delamere & Williams Company, Ltd., Toronto.*

★PNEUMATIC

Packaging and Bottling Equipment

save space
and money
with new

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CONTAINERS

The added rigidity, toughness and strength of containers made of Stone-Cor is retained to a great degree even under the most extreme humid conditions. This development of scientifically treated board has enabled Stone to produce containers with exceptional stacking strength. It also gives added product protection without increasing the container weight. Stone-Cor has solved the stacking problems for many of America's leading companies. Find out how it can benefit your company, too.

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Send for your copy of the special data sheet on Stone-Cor Corrugated Containers. It explains in full detail the many advantages of this new container development.

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Folding cartons, set-up boxes, fibre cans, tubes, spools, cores, transparent boxes, and paper specialty displays

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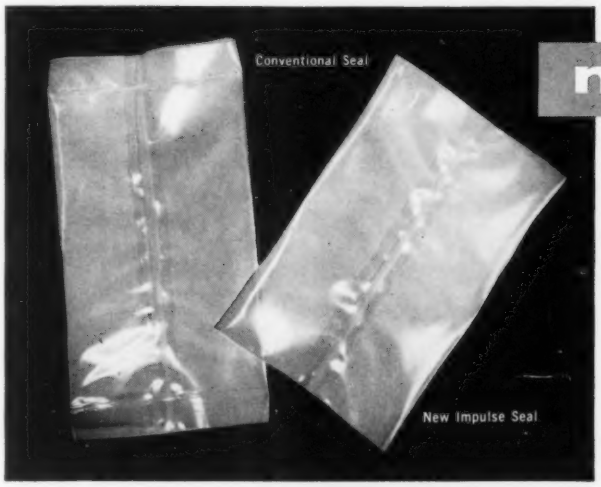
these new packaging developments at the AMA Packaging Exposition!

BOOTH 821



new

Polyethylene impulse seal with Stokeswrap eliminates film waste

Film savings made possible through a new electronically controlled impulse sealing method are graphically illustrated at left. This new impulse technique provides a strong, positive seal on such thermoplastic materials as polyethylene, pliofilm, vinyl, and other heat-sealing films.

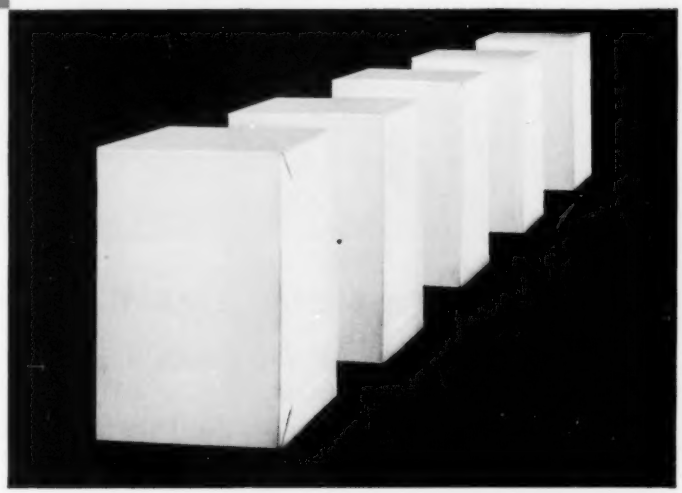
See the Stokeswrap with impulse sealing and electric eye registration in operation at the Packaging Show in Booth 821.

new

Sift-proof, moisture-proof packaging without an inner-liner or overwrap achieved on the high-speed "EH" Neverstop

Free-flowing products can now be filled and sealed in cartons at the rate of 350 per minute. Using hot melt adhesive, cartons are sealed under pressure and refrigeration with reactivation of the adhesive assuring air-tight, sift-proof sealing. A unique vibratory feed is electronically controlled to assure accuracy of fill, automatically compensating for fluctuations in product density.

See this cost-cutting development in operation at Booth 821.



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Pacific Coast: SIMPLEX PACKAGING MACHINERY, INC., 534—23rd AVE., OAKLAND 6, CALIF.

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from paper roll to finished product in... operation!

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ALL TYPES OF LABELS—with any stock; gummed, heat-seal silk, cotton, etc.
PRESSURE SENSITIVE LABELS—die-cut to backing sheet and stripped of waste.
ALL TYPES OF TAGS—merchandise, shipping, manifold, etc.
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- Prints any number of colors in a single run.
- Prints one or both sides at the same time.
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- Prints any type of label or tag material including pressure sensitive, heat seal, gummed, ungummed, paper, board, silk, cotton, etc.
- Slits, perforates, numbers, punches, eyelets and patches reinforcements—as it prints.
- Delivers finished product cut-off, rewound, or zig-zag folded.
- Up to 7500 impressions per hour!

Write today on your letterhead for free New Era bulletin!

VISIT BOOTH 1188 AT PACKAGING SHOW

NEW ERA

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QUALITY IN . . . AIR OUT with

HORIX *Non-Aerating* FILLING VALVES

For All Liquid Filling

COMPLETE ELIMINATION OF AIR FROM CONTAINER

Illustration shows how the valve port directs flow of product gently down one side of bottle or can, forcing air in container up opposite side and out through the air vent. Air is completely eliminated from the container and a low vacuum is formed in the head space.

LASTING ACCURACY

Fill cuts off exactly at established filling height at any operating speed. Horix filling valves retain their accuracy through long years of use.

CLEAN CONTAINERS

Air-tight sealing eliminates splash and assures an absolutely clean container . . . and containers stay clean and accurately filled without spill due to "one-at-time" removal by discharge turret.

SPEEDS FROM 6 cpm - 700 cpm

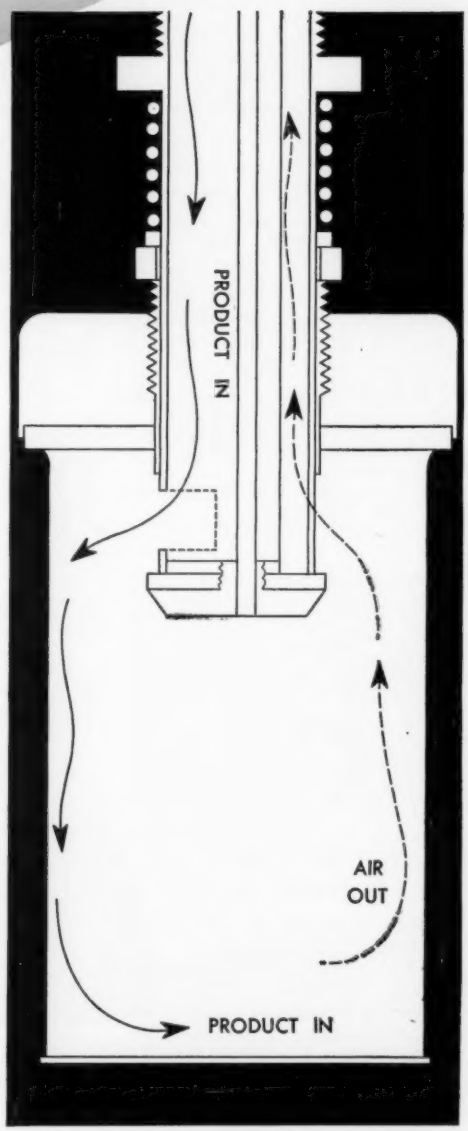
You get the same quality of product and same accuracy of fill on every Horix filler, whether built for low or high production speeds.

The flow diagram shows the *unique* Horix method of fill . . . product flows smoothly, naturally, by gravity from the supply tank, through the valve, and into the container. *No one yet has been able to devise a finer, more efficient, lower-unit-cost method for liquid filling.*

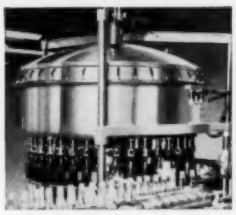
Due to the simple principle of operation, Horix fillers are built with the fewest moving parts. This assures years of trouble free operation under the severest production loads. It also permits quick thorough cleaning with steam or pressure hose.

Feature for feature, dollar for dollar, you just can't do better than a Horix . . . the reason why more and more processors are coming to Horix with their filling problems. Why don't you?

WRITE for Bulletin No. 155-P



HORIX
MANUFACTURING CO. · PITTSBURGH 4, PA.
FILLERS AND CONVEYORS

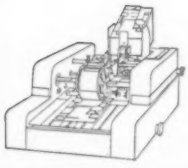


Typical Horix Catsup Filler for 600 bottles per minute. Fillers available for any production speed.

Cut label inventories with the Tickometer—

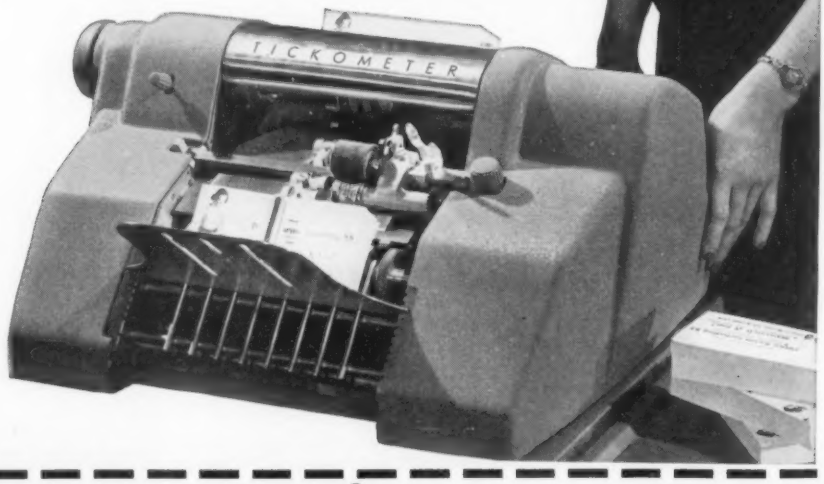
"Checked your label stocks lately?" asked one Purchasing Agent. "Ours were a mess! Label requirements are often overestimated, and we place big orders to get the best prices. I found ten years' supply on hand for certain items, and whole cases of obsolete labels."

- You can limit your labels to a few basic forms and sizes, and use a Tickometer to imprint designations as needed —weight, grade, size, color, type, and code or date. You can carry smaller inventories, save space and records, reduce printing bills, and avoid label waste.
- The Tickometer imprints up to *1,000 pieces a minute,* on almost any kind or weight of paper, and light card stock. Various models take sizes as small as 1 by 2 inches, up to 15 by 15 inches. Has an impression surface of 2-3/16 by 7/8 inches, and can register precisely. Feeds and stacks automatically. And also counts, makes predetermined counts, records part or full totals. *It's so accurate that banks use it to count currency!*
- The Tickometer can also be used to mark, stamp, cancel checks... and tickets, tags, sales slips, forms, coupons, etc., at a considerable time saving. Rented, or sold. Nationwide service from 296 cities. Ask the nearest PB office for a demonstration, or send coupon for free booklet.



New Package Imprinter

Imprints folding cartons, containers, bags, etc. up to 7,500 an hour, as needed —reducing inventories and waste. No tools required, can be operated by anybody. Ask for demonstration, or send coupon.



Pitney-Bowes

TICKOMETER

Counting & Imprinting Machine

Made by originators of the postage meter
... offices in 101 cities in U. S. and Canada

PITNEY-BOWES, INC.
7726 Walnut Street
Stamford, Conn.

Send free illustrated booklet on:
☐ *Tickometer* ☐ *Package Imprinter*

*Name*_____

*Address*_____

New polyester film takes heat-seal!

Now you can have all the advantages of packaging in tough polyester film – *plus* heat sealing – with "SCOTCHPAK."

This remarkable polyester film takes a seal as tough as the film itself – and easily: A temperature of 275° to 375°F. and 20-60 psi is all that's required.

"SCOTCHPAK" Brand Heat-Sealable Polyester Film gives you a packaging material with a high degree of inertness and resistance to extreme temperature conditions. It also protects against solvents, chemicals and moisture – yet has high tensile strength.

Here is a versatile packaging film. Manufacturers of such varied products as cosmetics, acids, syrups, silverware, oils, greases, adhesives, asphaltics, catsup, mustard and surgical dressing will find it ideal. It can even be used as a container liner or insulation pillow.

For complete information, write for folder described at right.

TRADEMARK

"SCOTCHPAK"

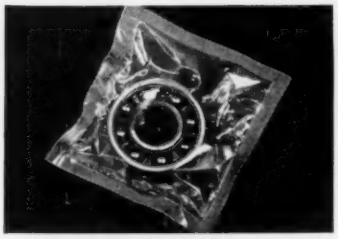
BRAND

HEAT-SEALABLE POLYESTER FILM

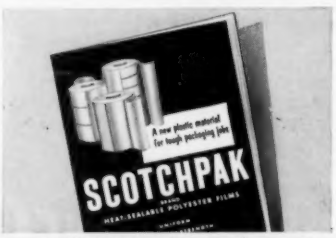
Look what you can do with it!

LIQUIDS, semi-solids, and solids can be packaged easily, handled safely, shipped without fear in heat-sealable containers of new "SCOTCHPAK" Polyester Film.

FOOD ITEMS are packaged safely in clear-as-glass "Scotchpak" Film. Contents can be frozen . . . even boiled *right in the package*. Low gas penetration rate . . . inert and non-toxic.



METAL PARTS can be packaged dry or in oil or grease to protect them against corrosion. Transparent packages are easy to handle, easy to ship and to store. Simplifies issuing of parts and units.



FREE FOLDER shows dozens of ways you can solve your most difficult packaging and shipping problems with new "Scotchpak" Polyester Film. Just write on your letterhead: Film Products Group, 3M Co., St. Paul 6, Minn., Dept. LY-47

The term "SCOTCHPAK" is a trademark of Minnesota Mining and Manufacturing Company, St. Paul 6, Minn. Export Sales Office: 99 Park Ave., New York 16, N. Y. In Canada: P.O. Box 757, London, Ontario. © 3M Co., 1957.

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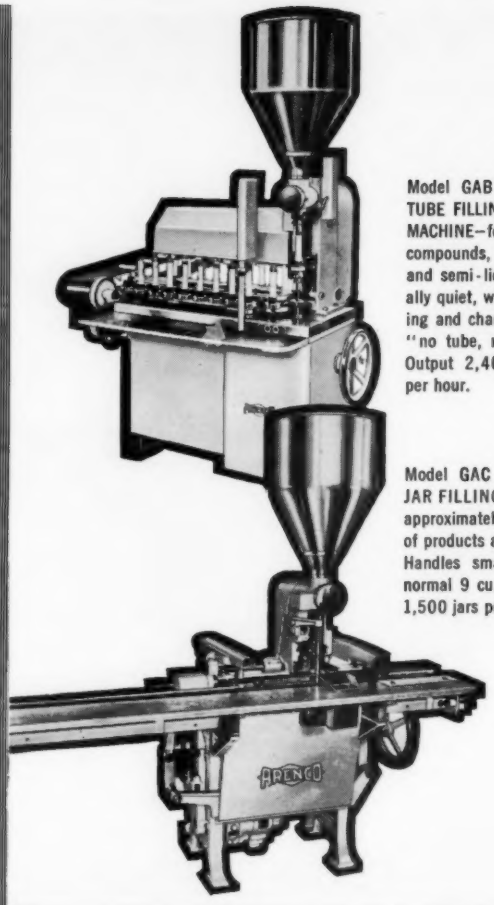
SPECIFY MORE THAN "SATISFACTION"

SPECIFY

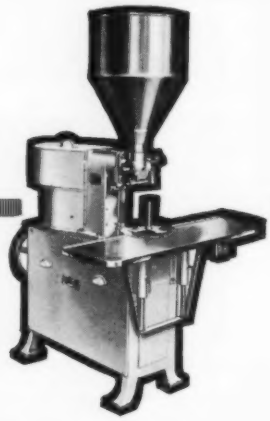
ARENCO

Planned ahead for modern needs . . . in design, materials and craftsmanship — and for operational convenience! Arenco's policy has always been to go beyond minimum requirements — to give you the extra value that assures dependability and surpasses "satisfaction".



Model GAB Fully Automatic TUBE FILLING AND CLOSING MACHINE—for packaging thick compounds, creams, liquids and semi-liquids. Exceptionally quiet, with easiest cleaning and changeover, includes "no tube, no fill" features. Output 2,400-3,000 tubes per hour.

Model GAC Semi-Automatic JAR FILLING MACHINE. For approximately the same kind of products as the tube filler. Handles smaller jars up to normal 9 cu. in., at 1,200-1,500 jars per hour.



Model GAM BOTTLE OR JAR FILLING MACHINE. For up to 1 quart sizes. Suitable for marmalade, apple sauce, mayonnaise, mustard, paint, varnish, oil and similar products. Output 1,200-1,500 containers per hour.

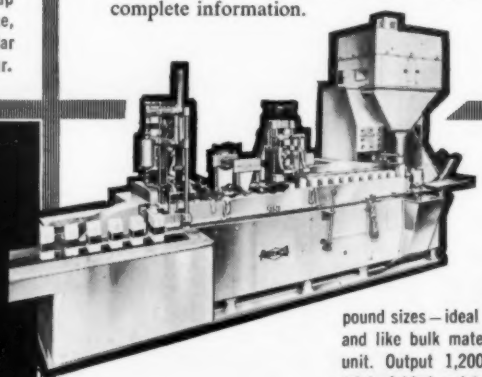
It means painstaking engineering, the use of finer materials . . . always more rigid quality control. That policy has proved successful because users know and appreciate the extra value that Arenco filling and sealing equipment provides.

It costs no more to specify Arenco — it does mean a finer, more reliable piece of equipment.

We'll be pleased to tell you about our complete line— and help solve any filling problem you may have. Write today for complete information.

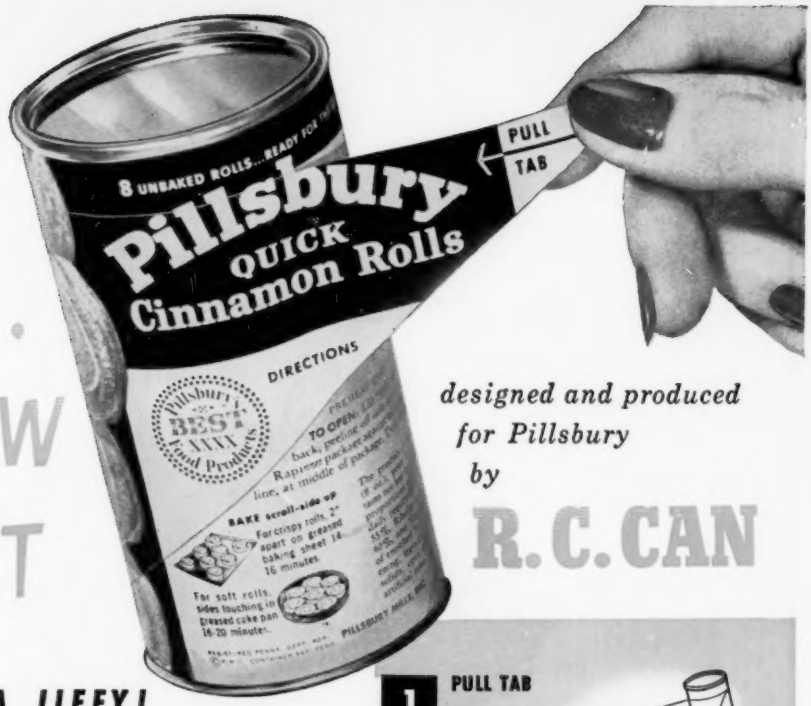
ARENCO

MACHINE COMPANY, INCORPORATED
25 West 43rd Street • New York 36, N. Y.



Model VUV Fully Automatic BAG FILLING AND SEALING MACHINE. For SOS bags — ½ to 5-pound sizes — ideal for coffee, flour, cereals and like bulk materials. Includes weighing unit. Output 1,200-2,000 bags per hour, triple folded and tape sealed.

A NEW CAN... FOR A NEW PRODUCT


8 UNBAKED ROLLS...READY FOR THE OVEN
Pillsbury
QUICK
Cinnamon Rolls
PULL TAB
DIRECTIONS
BAKE scroll-side up
For crispy rolls, 2" apart on greased baking sheet 14-16 minutes.
For soft rolls, sides touching in greased cake pan 16-20 minutes.

designed and produced for Pillsbury by

R.C.CAN

OPENS IN A JIFFY! EMPTIES ENTIRE CONTENTS!

Pillsbury wanted a new package for their biscuits and new cinnamon rolls . . . R. C. Can produced it, and are currently manufacturing cans for both products in great quantities.

The package had to be (1) simple enough in design to open easily without the use of any tool, (2) strong enough to hold more pressure than an auto tire, (3) efficient enough to discharge the *entire* contents quickly and easily, and (4) sealed well enough to reach the home kitchen-fresh as the day it was packed.

The Easy-Open Pull Tab Container has a double-foil moisture and grease barrier—the foil lining and the foil label. It opens in a wink . . . pull the tab, rap the package on the table edge—it's open! Completely, too! No rolls in the ends to pry out.

1 PULL TAB
PEEL OFF OUTER WRAPPER

2 RAP INNER PACKAGE SHARPLY AGAINST EDGE OF TABLE

3 TWIST OPEN. ALL THE ROLLS POP OUT... NO PRYING!

PATENTS PENDING

ANOTHER PACKAGING PROBLEM SOLVED BY R.C. CAN-GINEERING

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R. C. CAN CO. The Stamp of Quality ST. LOUIS, MO.

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"A case for automation"

Boxes seal themselves on this streamlined Hotpoint packaging line. Close tolerance H&D corrugated boxes make it work. Result: Faster packing, 30% labor savings. Better see H&D.

HINDE & DAUCH

Subsidiary of West Virginia Pulp and Paper Company

AUTHORITY ON PACKAGING • SANDUSKY, OHIO
14 FACTORIES • 42 SALES OFFICES

H. Earl Nack became a packaging consultant following his retirement from Merck Sharp & Dohme. He has had 42 years of experience, most of which was with this company or its predecessors. For 20 years prior to his retirement he was manager of its package development and specifications department. Prior to that time he had been in charge of several production departments. For six years he was chairman of the drug and pharmaceutical committee of Packaging Institute, a committee for whose creation he was largely responsible. He also served on PI's technical operations committee and was chairman of its product division.

This article, by one of the pioneers of packaging, is a reflection of more than 40 years experience in package development work. Mr. Nack's observations summarize some significant thinking on the management of the packaging function. His specific suggestions on the equipping of a package development laboratory should prove helpful to anyone concerned with the installation and use of such a laboratory.

How to set up a package development department

By H. Earl Nack,
Packaging Consultant,
North Hills, Pennsylvania

The *importance* of packaging has been stressed in every packaging forum since World War II. The need for a package development department is incontestable in the highly competitive market of today where a new package must meet rigid requirements.

The increasing number of packaging materials available, including the numerous plastics and plastic combinations, added to greater mechanization, has caused many companies to realize the necessity for over-all coordinated packaging procedures, accurate specifications and quality control of materials if mechanical equipment is to perform at maximum speed.

In order to meet today's competition, packaging for new products must be carefully planned. Sales on the older products may be increased substantially by the development of a new label design, new color combinations, a more functional package, or a re-use container.

Truly amazing results are often made possible when an old established line of products is studied and containers, labels, cartons, shelf packs and shipping cases are standardized to eliminate as many packaging components as possible. Savings in inventories, warehouse space and equipment change-overs are quite surprising.

Every company, of course, must organize its package development procedures in accordance with its own needs. The essential requirement to keep in mind is that packaging is never a function of any one department, but is an over-all company activity demanding complete cooperation from many departments or divisions. It is a complex company-wide responsibility. Its ramifications extend into nearly every part of the business, including manufacturing, purchasing, packaging marketing.

Place In Organization

A survey made sometime ago among drug and pharmaceutical companies indicated no pattern. This department in the various companies was under the direction of sales, purchasing, production, quality control, advertising or engineering.

The increasing importance of packaging requires that package development should no longer be considered a sub-department, but should be given administrative status di-

Looking for stresses and strains in glass caused by poor annealing.

Measuring the bursting strength of shipping containers on a motor-driven Mullen tester.

Elmendorf tearing tester for measuring resistance of board, paper and foil to tearing.

Note: All photographs appearing with this article have been furnished by Merck Sharp & Dohme Division of Merck & Co., Inc.

rectly responsible to top management. It must be in a position to cooperate with other departments on the same level.

Some thought is being given in the larger companies to creating a director of packaging who would serve as a liaison in an advisory capacity to coordinate all packaging activities such as developing, engineering, art, cost analysis, production, etc., which are now being handled more or less independently by several departments.

The direct relation between package development, packaging, and packaging equipment has been recognized by one company that employs an expert mechanic in the package development department in order that this department can assume responsibility, in cooperation with the engineering division, for the purchase of new packaging equipment. This responsibility also includes setting up the new equipment temporarily and its "de-bugging" before permanent installation.

Packaging Personnel

The size and nature of the company, the number and diversity of its products will determine the number of employees required to operate properly.

This department should be in charge of a qualified packaging engineer, but the demand for a man of this caliber far exceeds the supply due to the fact that until recently no specialized college course in this field has been available. The men now serving in this capacity are those who have grown up with packaging and have learned this profession the hard way. Packaging courses are now being offered by Purdue, M.I.T., Michigan State and Columbia. Other colleges are also offering valuable segments of packaging.

For the company that cannot secure or afford a full-time qualified man, an alternate set-up would be to select a good man from within the organization, and by combining the development of this young man with the aid of an outside consultant, the manufacturer can have a full-time packaging man plus the services of an intermittent consultant at a reasonable cost.

The packaging engineer is required to keep abreast of the times by subscribing to and studying pertinent technical and business publications; by active membership in associations devoted to the company's particular field as well as to packaging activities; by information derived from the salesmen who call on the company, plant visits, and

Packaging education moves ahead

While Michigan State University offers the first four-year course in packaging and is making definite plans for the expansion of its current program, many other institutions, in addition to those named above by Mr. Nack, offer packaging courses. For example, Rutgers University offers a 16-week course in packaging at its University Extension Division in Newark. Stevens Institute of Technology offers a similar course at its Hoboken campus. Illinois Institute of Technology offers evening courses in food packaging methods and materials, and New York University has a course in package engineering with emphasis on protective design techniques and cost reduction studies. The list of schools offering packaging continues to grow.

routine examinations of competitors' packages.

What Department Does

The activities and responsibilities of the package development department are numerous and vary widely from company to company to the extent that no rigid routine can be recommended. However, an attempt will be made to discuss the general requirements.

A purchase description or specification should be issued for every package component, detailing accurately the quality, dimensions, allowable tolerances and other vital requirements. Where the nomenclature of the industry, as in the case of set-up boxes, is sufficiently clear a descriptive specification is sufficient; but glass containers and many other items require drawings.

This purchase description, when circulated to purchasing, engineering, production, control and other interested departments, eliminates guess work, costly errors and pins responsibility on the package development department.

The purchase description must be so written as to enable the purchasing department and supplier to provide initial or repeat orders of a packaging component that will operate efficiently on the production line. In most instances, it is advisable to develop the description in cooperation with suppliers who will advise regarding the necessary tolerances required for their own production operations. They will also frequently make valuable suggestions that will improve the package and save money in the process.

It should be emphasized that the performance of the packaging material is the main objective, the material specification being the means to this end.

Use Of Specifications

We should, therefore, guard against setting unnecessarily rigid specifications with the mistaken idea that we are doing a bang-up job. On the contrary, your material may be less costly if your specification can be liberalized in such matters as toler-

Display of each packaging component at the package development laboratory of Merck Sharp & Dohme.

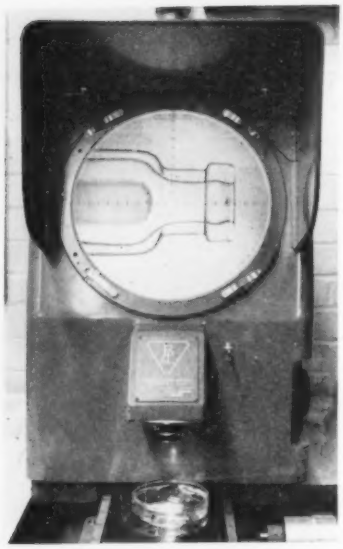
A variety of equipment and plenty of floor space characterize this package development laboratory.

What equipment a packaging laboratory has—and what it does

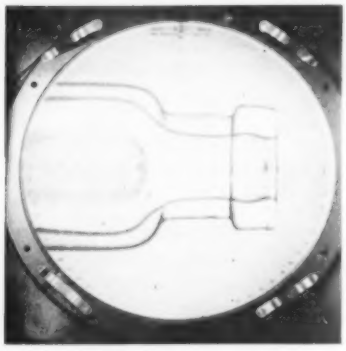
Equipment	Use	For
Polariscope	Detects stress and strain	Glass containers
Glass thickness tester	Determines wall thickness	Glass containers
Mullen tester	Measures force required to rupture	Paper, paper board & foils
Tear tester	Measures tear resistance	Paper, paper board & foil
Stiffness tester	Measures pliability or resistance to bending	Paper, paper board & foils
Durometer tester	Measures hardness	Rubber stoppers
Shipping tester	2 hours approximates vibrating motions of 1500 freight miles	Shipping units, tablet hardness, scuff resistance
Drop tester	Measures impact (foot-lb.) for shipping damage	Shipping cases
Tensile strength tester	Measures strength and elasticity	Paper, fabrics, twine, etc.
Heat sealer	Temperature required to seal	Cellophane, foils, etc.
Torque testers	Measures torque required to remove caps (inch-lb.)	Threaded closures
Size tester	Determines moisture absorptiveness	Paper, paper board
Densometer	Determines smoothness & porosity	Paper & paper board
Climatizer or testing cabinet	To duplicate conditions of humidity & temperature	
Autoclave PH meter	Determines ability to withstand steam sterilization (small pressure-cooker type)	

Note 1 Auxiliary equipment can be purchased to duplicate shelf life in any area, provided its environmental conditions are known

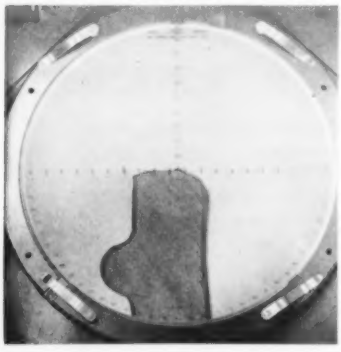
Note 2 If accelerated test or only high-temperature test is required, a less expensive model is available



This Bausch & Lomb comparator permits viewing the glass distribution in a small bottle by immersing it in oil (at bottom) and projecting it onto the screen. It permits measurement of shell or wall thickness.



This close-up view shows the rather heavy wall on a particular bottle. Black shadow in bottle body is an air bubble.



Here is a greatly enlarged view of an overpress. The piece of glass shown is approximately 1/16" thick and the overpress is .050". A 20x lens is used for clarity.

ances, grade and choice of material, within the limits required to perform satisfactorily.

A package specification should be set up for every package produced, whether simple or complex, and circulated to production, planning, quality control, cost and other interested departments. Rigid adherence should be mandatory and no deviation or substitution permitted except by authority of the package development department.

Obviously, it is necessary that this specification or worksheet should be carefully prepared. All components that are part of the package should be listed, and definite instructions as to the assembly of the package should be included where necessary.

For control purposes each component should be given a number. To do this, a non-repetitive code system in which blocks of numbers are set aside for each class of supplies (such as bottles, closures, boxes, etc.) has a definite advantage in that it eliminates complicated letter and numeral combinations and ties in with the bookkeeping system.

Final approval of the new package should be obtained and recorded on a prepared form in order that responsibility is fixed and a permanent record established.

A package approval form is recommended for this purpose and should establish:

1. The exact specification of the package.
2. Estimated cost.
3. Incentive standards if required.
4. Results of all tests.
5. Other pertinent reports and correspondence.

A dummy package or mock-up should accompany this form and become a permanent part of the record.

While the signatures of the entire packaging committee can complete this record, it is suggested that in order to expedite the processing of this document, responsibility be limited to certain key men representing sales, marketing, control and production.

Discontinuing A Package

A discontinuance notice should be developed to notify all concerned of the discontinuance of a component and to indicate its replacement. Also, the discontinuance notice should indicate if obsolete supplies should be used up or be disposed of.

Where the same components are used for a number of products, cross indexing is invaluable. When a change is being considered, in a box, for instance, it is necessary to ascertain how the change will affect all the packages involved.

Other forms for interdepartment circulation may be necessary in specific companies, but the concentration of all packaging activities in a single department eliminates the need for a complicated multiplicity of forms and reports.

Development Of Package

After it is determined that a new package is needed, in order to establish the package requirements, all vital factors must be considered. These include packaging materials, their compatability with the product, their utility, appearance, legal requirements, cost, producibility, distribution, expected volume, shelf pack and shipping case quantities, and possibly other considerations — depending on the product.

Responsibility for these activities vary widely in the field; a survey conducted sometime ago indicates this variation:

Distribution: Sales or traffic department.

Utility: Packaging committee, sales, package development.

Compatability: Analytical, packaging laboratory, research.

Protection: Package development, packaging laboratories.

Appearance: Packaging committee, art, advertising, sales.

Cost: Cost department, sales, engineering.

Producibility: Production department, production committee, packaging engineer, methods and standards.

Packaging materials: Package development, production, purchasing, art, singly or in combination.

Gurley densometer to measure finish and porosity of board and paper by resistance to air passage.

Climatizer, or testing cabinet, for storage tests of packages under any specified climatic environment.

Inspecting products stored under controlled atmospheric conditions to determine adequacy of packaging.

Expected volume: Sales, traffic.

Case quantities: Sales, production, traffic.

The individual company must assign the technical studies to the department within its own structure which is best equipped to do the development and pre-testing necessary. However, all testing of packaging materials should be the responsibility of the package development department.

The final step is to incorporate all findings and decisions in the package specification and package approval form.

Using A Committee

Obviously the development of a new package is not a one-man job, but involves the co-ordinated efforts of all. The need is apparent for a packaging committee composed of the necessary representative personnel, committee size depending on the size of the company, to advise the package development department.

The packaging committee in some companies includes a qualified man from sales, purchasing, production, advertising, art, traffic, research, engineering, product development, label control, and legal departments.

It is recommended, however, that your committee be limited to as few members as possible in order to get prompt, decisive action. A good plan is to include the top bracket men necessary to decide on type, construction, protection, appearance and producibility. Other factors such as cost, expected volume, patent and legal requirements can be determined out of committee and incorporated in the final package presentation.

Packaging Laboratory

A valuable and much needed adjunct to the package development department is the installation of a testing laboratory where the various components can be tested, and quality controls established. This laboratory can be equipped elaborately or with a minimum of instruments. The cost of installation, personnel and area required will vary with the volume and scope of the undertaking.

The cutting wheel of this glass saw turns at approximately 1500 rpm. Laboratory is developing a fixture to hold various containers being cut, so that an inspector need not hold them with his hands.

A well set-up laboratory routinely tests the individual packaging components for tear resistance, pliability, scuff resistance, impact strength, elasticity, abrasion resistance, smoothness, porosity, moisture absorptiveness, etc. Finished packages are tested for their ability to be safely shipped, and stability tests are conducted to insure the compatability of the product and the containers.

A check list of the instruments usually found in this type of laboratory may be of value in determining the scope of requirements. This list accompanies the text of this article.

The instruments listed on this chart can also be used in quality control procedures for the inspection of incoming packaging supplies.

It should now be quite evident that the importance of packaging will certainly justify the existence of a package development department, directly responsible to top management, so organized that all possible responsibilities can be concentrated under a single authority.

A re-study of the old packages should not be neglected even though everyone seems satisfied. A review of the past history of the present packages, consideration of the newer packaging materials, a redesigned label and carton, or a re-use container often produces gratifying results.

H. Geddes Stanway joined Skinner Manufacturing Company in 1953 as vice president in charge of production after three years as an outside consultant to the company on production and management practices. His career includes teaching experience in the post-graduate and undergraduate School of Commerce of New York University and as a part-time faculty member of the University of Southern California. He has been president of an organized union; director of industrial engineering, Washburn Wire Company; director of salary and wage administration, E. R. Squibb & Sons, and director of his own business consultant firm. He is the author of "Applied Job Evaluation."

Here is a practical, realistic approach to the directing and supervising of packaging line operations. Mr. Stanway's observations reflect his experience (1) as a key member of top management, (2) as an outside consultant free of internal frictions and loyalties, (3) and as a one-time president of an organized union. Aside from his views on packaging line management as a whole, his attention to the problems of a foreman and a superintendent deserve special scrutiny by managers and technicians alike.

Human relations on the packaging line

By H. Geddes Stanway,
Vice President and Director, Skinner Manufacturing Company, Omaha

Much of our attention to packaging lines goes to mechanical aspects. Efficiency, however, is primarily borne and sustained by the human element related thereto. A great deal depends on the people assigned to the task of initial layout and set-up, together with proper alignment and adjustments conducive to high efficiency of operation.

Again, the people assigned to proper maintenance are a big factor in the time value of the equipment. Last, but not least, are the people assigned to operate the equipment. Any machine without the proper attitude of the operators, can prove to be very ineffective.

Any packaging line, whether it be automatic, semi-automatic, or manual is nevertheless dependent on people for real efficiency. Still another aspect of the human element, in my opinion, is the attitude of the individual. Attitude of people in any enterprise, from the top executive down to the line workers, has a tremendous effect on real efficiency.

Start With Top Man

The top executive in packaging line human relations is a good starting point in our examination of the topic. From here we can go on down the line for the purpose of segregating the objectives, motives, problems, and solutions. I am sure most readers will agree each level of management employee does have differences in these points.

However, one thing each level has in common, whether each realizes it or not, is that he is competing with union leadership for the loyalty of his employee. Every well trained manufacturing executive has learned the full effect of keeping working force relationships harmonious, and his plant operating with a minimum of sacrificing economic realities or basic principles.

The top executive might well confine himself to results. But the effect of his influence in coordination, understanding, and tolerance will surely affect the attitude of the packaging line personnel, either directly or indirectly. Much depends upon how close a relationship the executive has with the direct line operation.

Quite often, an executive, despite his many responsibilities for major management functions, maintains a periodic observation of line operations. In this case, his familiarity with detail problems becomes manifest with employees. It is not unusual then, under these circumstances, that employees let their own likes and dislikes for methods and layout, be known directly to the executive.

Make Informal Tour

Depending upon the magnitude of the operations, one will decide as to the appropriate practice in making observations and maintaining package line relations. However, wherever practicable, the less formal tour that can be made the better and closer will be the relationship between line employees and the executives.

Very often a casual "Hello, girls" or "How is everything going?" or a comment about the workmanship will launch a few returning remarks. As one girl said, "Could we not have more light here?", and another, "Mr. Stanway, these tables are too high." Each of these remarks were intended to support an attitude of resistance to relocation. This gave me the opportunity to have suggestions corrected and by so doing something about these remarks, it tended to deflate the resistance.

Fig. 1. The former method of packaging utilized only two lines of girls in contrast to the new method utilizing three. Girls at left were wrappers. After scaling package contents to proper weight, they rolled and wrapped the packages. Girls at right were tapers. After taping ends of each package, they put these on the conveyor.

Fig. 2. The new method is more flexible than the old because it allows for expansion as needed. Each wrapper became a weigher and wrapper. This change permits the tapers to speed up their output because they do not lose time waiting for packages. Likewise, case packers lose less time waiting for the finished work under this method.

It is never difficult to draw packaging line employees into discussing some of their daily troubles. One needs only to show interest in their efforts. It is gratifying, too, when an employee says, "Well, at least you will listen." This does not mean that these girls are coddled. On the contrary, quite often I have found it necessary to make a strong point of inadequate efforts on the part of some employees. Even so, mutual respect for the most part will win out.

To summarize our views on maintaining direct, personal relationships with those on the packaging line: It is understandable that sometimes this can be embarrassing. However, it is our opinion that the advantages of such relationships far outweigh the moments of embarrassment. For example, in one particular case, a manual packaging line was changed from a ten-girl operation to allow for a 15-girl operation. The line was relocated away from windows where it had been for some years. Also, certain girls were required to change their methods from a dual function to a single function.

This modification was made upon the request and plan of the executive. From the initial hour of the changed set-up, first about the location, then about the height of the new work tables, then about splitting the dual operation, each complaint was answered with tolerance and understanding. Modifications were made to implement some of the suggestions. Still, bedlam prevailed. Sometimes the superintendent, or the forelady, would reveal a loss of patience. The executive's explanation to supervision and employees alike was that each must be patient, and keep trying.

Resistance To Change

Here it was primarily a case of resistance to change. Resistance to change is a most usual human malady and should be met with tolerance and understanding. Specifically, it was the attitude of a few people. After several days and personal observation by the executive, it was obvious to the employees that the new set-up was in to stay.

It was also obvious that tolerant listening, willingness to help by explanation from the executive down through the forelady, had changed a resisting attitude to a cooperative attitude. The result was to increase the output per labor hour by some

The importance of people

It is unfortunate that so many operating executives and packaging engineers become so fully engrossed in the mechanical and materials aspects of their work that they tend to overlook the human factors. In view of the generally tight labor market almost everywhere, it behooves those responsible for packaging line management to make the most of the people they have on their lines. Having been on both sides of the fence, Mr. Stanway has a distinct recognition of the problems of those on the firing line. Those wishing to make the most of their human assets would do well to heed his observations. A particularly interesting point raised in Mr. Stanway's discussion is that attitude and morale improvement are not necessarily dependent on a stepped-up financial incentive and may rest on personal and intangible considerations quite apart from dollars.

30%, resulting in a lower cost operation.

Employee Morale Down

In another case top management had decided to put a line on an incentive pay basis in an effort to cut costs. After observing the operation at the request of management, this writer, in a consultant capacity, reasoned that a system of incentive was not the answer to the problem. The real problem was one of employee attitude.

They were a fine group of workers, but somewhere in recent months, they had developed a "what's the use" attitude. This was directly attributable to the fact that many suggestions had been made, such as changing the lighting, lack of maintenance service when needed, cooperation from other service employees to the line group. All these were points that needed management follow-up. This had not been accomplished and the resulting employee view was that management did not care. So, they adopted the attitude, "Why should we worry or try to do our best?"

Incentive Not The Problem

After explaining the real problem to management, a close relationship and plan of observation was implemented to correct the situation. The consultant was given full responsibility to work with the people, to do the follow-up, and to make whatever changes he deemed necessary. Actually, little was needed to be done beyond psychologically developing a change of attitude; working out a schedule of maintenance service; repairing a work table, and setting up a proper and timely system of service.

The result was that within a week production was increased 25% for the same labor expense, with the workers themselves in a happier mood. Had this company put in an incentive system, it would have resulted in the addition of a full time clerk, plus numerous problems in union relations.

Importance Of Attitude

Attitude is an all-important characteristic of human relations, and especially of packaging line employees. This is understandable when one considers the tediousness and routine monotony of many paekaging operations. It is the same thing hour after hour with no variety. To offset this, the employees will seek variety. Sometimes this can result in requests for privileges not usually anticipated. Or, there will be a continual womanly chatter which sometimes results in lower output.

We believe that in attitude development on the packaging line, one must be conversant with the specific conditions before there can be an equitable policy. For instance, on one line where six girls are employed, it is the accepted practice that each hour the girls will shift particular functions. The machine filler will take over bag filling, the bag filler will take over sealing bags, the sealer will take over casing, etc. Yet, on another line where there are 16 girls, there is never any changing of functions.

When a new installation was made (to which some of the girls used to changing each hour were assigned) the problem of changing developed. To change functions each hour was positively impractical from a production point of view. But the problem was solved by first trying the changing and proving it to be impractical, then making a firm decision that changes would be acceptable only at normal break times.

Our point was that a girl needed

More than money involved

Management's preliminary, although incorrect, judgment that an incentive program was necessary merely underscores the fact that however important money may be per se, it is not the total answer to employee satisfaction on the packaging lines. The actual solution of the problem hinged largely on attention to a number of minor sources of irritation plus the development of a basic change in attitude. This merely proves that unless the attitude of those manning the packaging line is up to par, it can negative the effectiveness of the best of automatic packaging machinery.

Rotation vs. non-rotation

The repetitive nature of most packaging line tasks deserves careful scrutiny by management when deciding whether to rotate the workers at stated intervals (such as every hour) or to leave them on their assignments for relatively longer periods of time. It is important that any management avoid tying itself up inextricably in a series of fixed commitments to rotate people on certain jobs. Experience may show that rotation is impractical. Sometimes the best way to prove this to the satisfaction of the workers is to let them try it. Then after serious disruptions occur, the point is usually well demonstrated and suggestions concerning excessive rotation no longer appear.

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time to get into the swing of the function to gain normal effort to keep up with the speed of the machine. To this — most agreed — so the girls were given a choice of going back to their old line, or accepting the conditions of the new installation.

Making Specific Changes

Two examples, as illustrated, show specific application of our general approach to packaging line changes. In Figure 1 there are only two lines of girls in contrast to Figure 2, where there are three lines. In the old method (Figure 1) the girls to the left of the lines were wrappers, and they picked up the product after placing the wrapper on the scale, scaled the contents to the proper weight, then rolled the wrapped package (line glued) and placed the package on the conveyor shown.

The girls to the right of the picture were tapers. Their function was to pick up the package and tape both ends and replace on conveyor where it was conveyed to a packer. This was a ten-girl operation.

Figure 2 shows the new method. Here the method is more flexible to allow for expanding the operation as needed. The specific function of the wrapper was changed to that of weigher and wrapper to do the function formerly done by only the wrapper.

Studies showed that a person doing weighing alone could increase her unit output three to four times that of the previous method. The tapers then would increase their output over the old method because of no lost time waiting for packages. Also, the case packer had less loss time waiting for finished packages.

Superintendent's Problems

Tolerance and understanding are quite important at the superintendent level. This is the level of management usually responsible for proper planning and scheduling. It is not unusual that when schedules are not completed according to plans there is a tendency to be abrupt and intolerant of "excuses" from the forelady or the employees.

We realize, of course, that the superintendent level of management is one of considerable pressure. In one case history, the superintendent, while meaning to be understanding, nevertheless had the unhappy faculty for shouting, arm waving, or snorting at his subordinates. Little did he seem to realize that the more he raised his voice and got excited, the less per labor hour he got. The old saying about "people are funny" is not true. People are just human, and the major factor in the workday wants of most workers today is pride and respect as a human being.

Attitude development toward the specific job is, and can be, successful in dealing with packaging line employees. At the risk of being repetitious, it can be emphasized that employee attitude developed with positive, rather than negative outlook, will result in the desired objectives of mutual understanding and greater individual productivity.

The superintendent level of management, which includes packaging lines, usually has a wide variety of functions regardless of how many staff members there are to assist in getting the job done. In a larger organization, the problem of coordinating supplies, equipment and labor is a tremendous one.

Equipment set-up, scheduling raw materials and packaging materials on hand to coincide with labor available can be exasperating. The superintendent's relationship with packaging line employees is one of important human effort, and the development of industrious output by the individual employee is essential.

Tackling Waste Problem

Take the case of waste. This factor on any packaging line has a tremendous influence on operational costs, and sometimes will even mean the difference between meeting or not meeting scheduled output. The superintendent either directly or indirectly through the forelady or foreman must develop an employee recognition for the adverse affects of waste in time, materials, and supplies.

Sometimes, it is very effective for the superintendent to have each line keep a record of waste. He then converts this to dollars and takes the employees into his confidence by showing the dollar cost, together with the possible corrective practices. Through this practice of occasional informative conferences with line employees, he displays a "working together" relationship. Many case histories prove this relationship to be most effective.

To be sure, there are those exceptions who will take advantage of tolerance, but most workers return respect for respect. The boss who is inclined to "blow his bonnet" must be trained to confine his demonstrations to the closed office. Time proved

(Continued on Page 78)

Foreman and superintendent

Although much attention focuses on the pivotal role of the foreman as a first line representative of management, relatively little attention goes to the problem of developing a proper relationship between a superintendent and his foreman, and the other relationships of the superintendent. The trouble is that often a conscientious superintendent is prone to bypass his foreman to get directly at the heart of a particularly trying packaging line problem. Sometimes this may be advisable but newly-appointed superintendents would do well to make the most of their foremen – and still manage to maintain a friendly but casual relationship with the working force on the line.

Plagued with the difficulties of labeling bottles dripping with condensation, Pharmaceuticals, Inc. hit on a solution: Heat the glass itself before filling. This article describes the details of this heating operation and reviews also the solving of such related difficulties as bottle breakage due to thermal shock. Its handling of heat and time sequences deserves the attention of those faced with cold weather labeling.

Labeling glass containers that are below dew point

An odd sort of cold-weather problem of labeling glass containers was encountered as a result of developing more economical packaging material supply methods at the plant of Pharmaceuticals, Inc., Newark, New Jersey. In its extreme form the problem was the occasional breakage of large glass containers at the dry-labeling station. Cleaning up a dry labeler takes longer than cleaning other kinds of machines, and is more than a mere vexation, for production is having a difficult time of it to keep up with sales.

Briefly stated, the problem arose from cold bottles, the temperature of which was below the dew point of the air in the packaging department. Moisture would condense on the glass containers. But, though seemingly insignificant in quantity, it was enough to prevent some of the thermoplastic labels from adhering properly.

The cold-bottle problem arose from the new method of using containers directly from the trailers that transported them in winter months from the plant of the glass manufacturer, some 110 miles away. Heretofore, the containers had been unloaded and placed in basement storage for variable periods before filling. Although variable, the time in storage had been long enough to permit the cold glass to reach a temperature above the dew point of the ambient air.

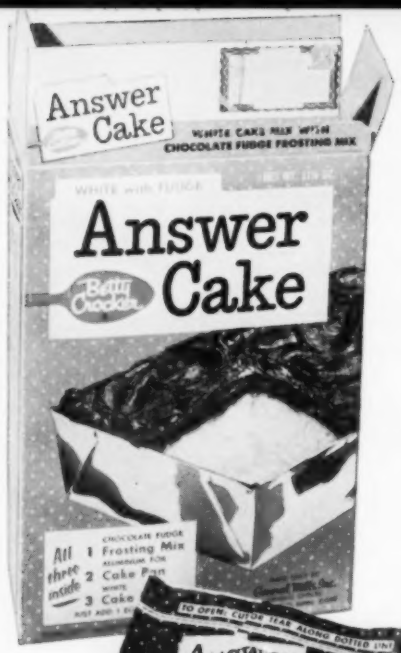
The economy of using the containers directly from the transporting vehicle was so great that it precluded any return to the older method of storage before use, with its attendant cost of rehandling and in-plant transportation. Hence a different solution of the cold bottle problem had to be found.

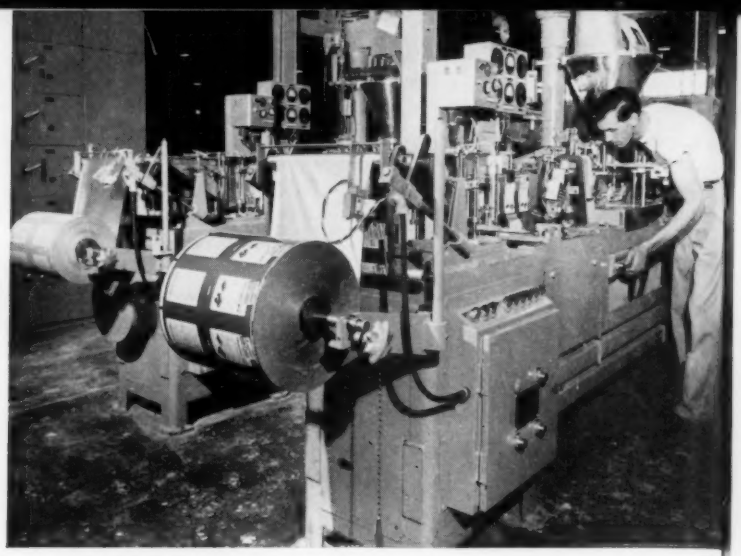
The obvious solution here would be to warm the liquid to be filled so that the containers would be above the dew point and, thus, be free from the barely perceptible moisture-film by the time they reached the dry labeler. This method is commonly used by many manufacturers, notably the distillers.

They may find that their bottles coming directly from freight cars in bitterly cold winter weather are so far below the dew point that they literally drip water in the packaging room. The amount of this condensation may be so great that aqueous adhesives cannot stick the labels to the bottles. This condensation can be prevented by filling the product sufficiently warm.

Preventing condensation by heating the product before filling is, however, feasible only when the product is heat-stable. Whiskey is such a product and is not injured by heating. A pharmaceutical product may, on the other hand, be susceptible to heat damage. In the case under consideration, the product contains many vitamins, some of which rapidly lose potency at elevated temperatures.

The extent of the deterioration may not be very severe, but it was found to be great enough in the case of certain vitamins that the product would assay differently before and after heating, and thus would give figures that differed from those given





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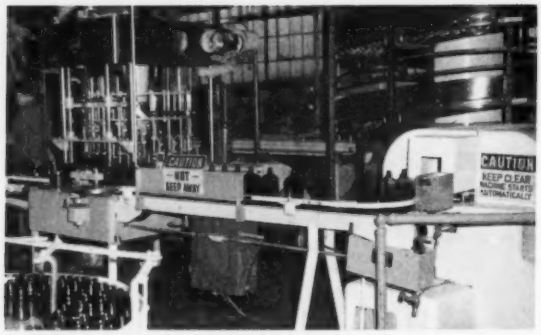


Fig. 1. In the first phase, cold bottles were exposed to radiant heat on one side only. Heater is on back side of the guard bearing the sign: "Caution — Hot — Keep Away." Continuously hot, it required manual removal of overheated bottles after 15-second delay.

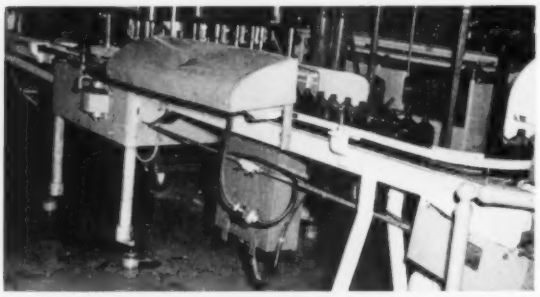


Fig. 2. The second phase of the solution of the cold-bottle problem was to expose both front and back of bottles to radiant heat. Box below conveyor houses the percentage timer, relays, and toggle switches. System is now fully automatic.

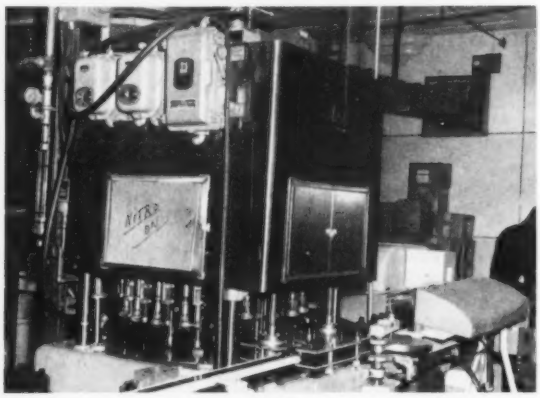


Fig. 3. Starting and stopping switch atop the enclosed filling machine is the control point for actuating the percentage timer which shuts off power from heater after a lapse of 15 seconds following stoppage of the filler. Result: No more overheated bottles.

on the label declaration. This would lead to trouble with the Food and Drug Administration, let alone the loss of consumer confidence. Therefore, another solution had to be found, one that would permit filling the product at room temperature.

It required no great ingenuity to find the answer: Heat the glass itself before filling. This was easily accomplished by placing a radiant heater on the incoming glass line, shown in Fig. 1. Soon, however, it was found that whenever a line shut-down of longer than 15 seconds occurred there would be occasional breakage of bottles at the labeler — not at the filler! This breakage and spilling of contents in the dry labeler was particularly annoying because of the sticky character of the product.

The cause was easily traced to thermal shock: Filling a cold liquid into an overheated bottle, the overheating taking place because the bottles remained stationary in front of the radiant heater instead of moving continuously past it. For some unexplained reason the glass did not break in the filling machine where it would be simple to clean up; the actual breakage was usually delayed until the labeler was reached.

Don't Let Them Get Too Hot

The obvious remedy here was one of prevention. All that was necessary was to prevent the bottles from becoming too hot. Therefore, the filling machine operator whose station was nearest to the bottle heater was instructed to remove all bottles from it in the event of a line stoppage of longer than 15 seconds. This precaution proved entirely satisfactory except when the stoppage was caused by trouble at the filler.

Under this circumstance the operator was usually so busy placing the machine back into operation that he would often forget to remove the bottles from the heater until they had become too hot for safe filling.

Watch Out For Shutdowns

Although other operators, farther along the line, were instructed to meet the emergency and remove the bottles if the filler operator was busy with a shut-down on his machine (comparable to short stop covering first base in a ball game) they did not always do it soon enough.

This sometimes caused further line delays because of breakage of overheated bottles. Thus, it became imperative to develop an automatic method of avoiding overheating of bottles for, in this plant, uninterrupted production is a *must*. The production department has been hard put to keep up with sales.

Overheating of bottles during stoppages has finally been prevented by the evolution of a few gadgets—some made in the company's own shop,

Exhibitors

The American Management Association National Packaging Exposition

EXHIBITOR	BOOTH	HOTEL
A-B-C Packaging Machine Corp.	1162-64	
Abbott Plastic Machine Corp.	772	
Acme Steel Co.	1106	
Addressograph-Multigraph Corp.	536	
Ajusto Equipment Co.	635	Stock Yard Inn
Aluminum Co. of America	1022	
Aluminum Foils, Inc.	1094	LaSalle
Ambassador Plastics & Mfg. Corp.	1281	
American Can Co.	1005	Sheraton-Blackstone
American Excelsior Corp.	722	
American Latex Fibre Corp.	1265	Morrison
American Marking Corp.	1183	
American Partition Co., Div. Standard Brands, Inc.	735	Palmer House
American Type Founders Co., Inc.	1040-44	
American Viscose Corp., Film Div.	954	Conrad Hilton
Amsco Packaging Machinery, Inc.	814, 822	Palmer House
Anderson Bros. Mfg. Co.	653	Eastgate
Apex Machine Co.	1280	
The Arabol Mfg. Co.	964	Congress
Arenco Machine Co., Inc.	1234	Palmer House
Armour & Co., Curled Hair Div.	1255	
Askania Regulator Co.	432	
Atlas Plywood Corp.	875	
The Auto-Vac Co.	657-61	Congress
Avery Adhesive Label Corp.	727-29	Sheraton
Avion Div., A.C.F. Industries Inc.	763	
Bakelite Co., Div. Union Carbide and Carbon Corp.	922	Palmer House
Bartelt Engineering Co.	983	Palmer House
Basca Manufacturing Co., Div. of Huyler's	699	
Bemis Bro. Bag Co.	1213-15	
Bensing Bros. & Deeney Sales Co.	805	Morrison
Better Packages, Inc.	511, 515	Palmer House
Big Joe Manufacturing Co.	233, 237	
Biner-Ellison Machinery Co.	1167	Bismarck
E. L. Bivans, Inc.	1114	Sheraton
Blocksom & Co.	1257	LaSalle
Bostitch	1065	LaSalle
Bradley Container Corp.	935	
W. Braun Co.	505	
Brown Bag-Filling Machine Co., Inc.	1165	Palmer House
The Brown-Bridge Mills, Inc.	1259	Palmer House
B. H. Bunn Co.	517	
The Burlap Council of the Indian Jute Mills Association, Inc.	675	
The Burnet Co.	1186	
F. N. Burt Co., Inc.	762	Palmer House
C.I.T. Corp.	1064	
California Wire Products Co., Inc.	616	
Cameron Machine Co.	766	Palmer House
Campco Div., Chicago Molded Products Corp.	1272	
Carbert Manufacturing Co., Inc.	1295	Sheraton
Carry-Pack Co. Ltd.	513	
Celanese Corp. of America	949	Palmer House
Celluplastic Corp.	739	Palmer House
The Celon Co.	1134	Palmer House
The Celotex Corp.	1144	Sherman
Central States Paper & Bag Co., Inc.	771	LaSalle
Ralph Chaffee & Co.	1249	Stock Yard Inn
Chain Belt Co.	750	
The Champion Paper and Fibre Co.	428	
Champlain Co., Inc.	1111	Lake Shore Club
Chase Equipment Corp.	512	Lake Shore Club
Chaspec Manufacturing Co.	1021	
Chicago Printed String Co.	1229	
Chippewa Paper Products Co., Inc.	859	
Chisholm-Ryder Co. of Pennsylvania	1260	Harrison
The Clark-Aiken Co.	813	Palmer House
The Cleveland Container Co.	1113	LaSalle
Cleworth Publishing Co.	685	
E. D. Coddington Manufacturing Co.	1217	
The Collapsible Tube Manufacturers Council	790	
Comet Industries	1198	
Conapac Corp.	1154-60	Palmer House
Continental Can Co., Inc.	833-35, 839	
Cotswold Fibres, Inc.	781	Sherman
Crown Cork and Seal Co., Inc.	806	Palmer House
Crown Zellerbach Corp.	921	Palmer House; Sheraton Blackstone
Cryovac Co., Div. of W. R. Grace & Co.	836	
Culligan, Inc., Desiccant Div.	1241	LaSalle
The Daher Co., Inc.	1248	Palmer House
Daily News Record	509	
Delaware Barrel & Drum Co., Inc.	328	
Delaware Ribbon Manufacturers, Inc.	419	Conrad Hilton
Delta Engineering Corp.	1283	
Dennison Manufacturing Co.	1121	Palmer House
Derby Sealers, Inc.	1143	Congress
Dewey and Almy Chemical Co., Div. W. R. Grace & Co.	770	Conrad Hilton
C. H. Dexter & Sons, Inc.	1238	
Diagraph-Bradley Industries, Inc.	1269	Morrison
Diamond Plastic Box of Illinois, Inc.	1062	Bismarck
Dilts Div., Black-Clawson Co.	744	Sherman
Dispens-A-Label Devices	610	
The Dobeckmun Co.	1039	Palmer House
Doughboy Industries, Inc.	1175	Conrad Hilton
Doven Machine and Engineering, Inc.	323	
The Dow Chemical Co.	1084, 1088	Palmer House
E. I. du Pont de Nemours & Co., Inc.	926, 936, 940	Palmer House
Dudley Corp.	1264	
John Dusenberry Co., Inc.	736	
Eagle Chemical Co., Inc.	779	
Eastman Chemical Products, Inc.	976, 984	Sherman
Eastman Kodak Co.	975	Sheraton
Economic Machinery Co.	710	Palmer House
Ekco-Alcoa Containers, Inc.	706	
Electronic Machine Parts, Inc.	733	Palmer House
Elgin Manufacturing Co.	1253	
El-Tronics, Inc.	228	
Epsen Lithographing Co.	788	Palmer House
Eriez Manufacturing Co.	231	Palmer House
The Exact Weight Scale Co.	626-28	Congress
L. F. Fales Machine Co.	405	
Felins Tying Machine Co.	1299	Stock Yard Inn
J. L. Ferguson Co.	711	Morrison
Fibre Drum Manufacturers Association	1146	Sheraton-Blackstone
Fibreboard Paper Products Corp.	406	Palmer House
Fife Manufacturing Co., Inc.	714	
The F. G. Findley Co.	990	Palmer House
Dave Fischbein Co.	1231	Palmer House
Flexigrip, Inc.	418	
Foiltone, Inc.	676	
Follansbee Steel Corp., Sheet Metal Specialty Div.	408	Palmer House
Food Engineering	721	
H. B. Fuller Co.	623	
Fulton Bag & Cotton Mills	1275	
Robert Gair Div., Continental Can Co., Inc.	854, 864	Drake; Palmer House
The Gardner Board and Carton Co.	883	Sheraton-Blackstone
Gaylord Container Corp. Div. Crown Zellerbach Corp.	921	Sheraton-Blackstone
General Box Co.	734	Palmer House
General Chemical Div., Allied Chemical & Dye Corp.	794	Palmer House
General Electric Co.	519	
Gibbs Automatic Moulding Corp.	658	
Gisholt Machine Co.	306	Palmer House
Glassine & Greaseproof Manufacturers Association	523, 529	
Glo-Brite Products, Inc.	737	
Globe Heat-Seal, Inc.	725	Sheraton
The Goodyear Tire & Rubber Co.	971	Palmer House
Adolph Gottscho, Inc.	1138-40	Sheraton-Blackstone
Gray Company, Inc.	217	Sheraton-Blackstone
Graymills Corp.	745	
Greenwood Packaging Supply Co.	640, 644	Ambassador West
The Greif Bros. Cooperage Corp.	1285, 1292	Palmer House
Griffin-Rutgers, Inc.	403	
B. F. Gump Co.	713-15	Stock Yard Inn
Hampton Manufacturing Co.	1243	Sherry
The Hankins Container Co.	843	
Hayssen Manufacturing Co.	1125	Conrad Hilton
Hazel-Atlas Glass Co.	1026	
Hedwin Corp.	223	Sheraton-Blackstone
Heidelberg Western Sales Co.	1080	

Continued on following page

EXHIBITOR	BOOTH	HOTEL
H. H. Heinrich Co.	1157	Bismarck
Fr. Hesser Maschinenfabrik Aktiengesellschaft	994	Palmer House
Hinde & Dauch	1036	Sheraton-Blackstone
Hobbs Manufacturing Co.	789	
Allen Hollander Co., Inc.	630	Ambassador
Hope Machine Co.	1211	Bismarck
Howard Publishing Co.	670	
Hudson-Sharp Machine Co.	1034	
Ideal Stencil Machine Co.	514	Bismarck
Imco Container Corp.	1068	Congress
Industrial Shredder and Cutter Co.	671	Bismarck
Inland Container Corp.	755 -59	
Inland Wire Products Co.	1271	
Intaglio Service Corp.	718	Congress
The Inta-Roto Machine Co., Inc.	329	Congress
Interchemical Corp., Printing Ink Div.	1014	Lake Shore Drive
International Marking Machine Co.	1287	Congress
International Paper Co.	906	Congress
International Staple and Machine Co.	1153	Sheraton
The Ivers-Lee Co.	1221	Palmer House
Jet-Pak Inc.	640, 644	
Jiffy Manufacturing Co.	1135	Palmer House
Johns-Manville Dutch Brand Div.	317	
Jones & Laughlin Steel Corp., Container Div.	867	Palmer House
Jupiter Plastics, Inc.	417	
The KVP Co.	1171	
Kahlenberg-Globe Equipment Co.	303	Bismarck
Kartridge-Pak Machine Co.	642	
The Kendall Co., Polyken Sales Div.	865	
Kennedy Car Liner and Bag Co., Inc.	416	LaSalle
Keyes Fibre Co.	1189	Palmer House
Kidder Press Co., Inc.	1166	Sheraton
The Karl Kiefer Machine Co.	1218	Lake Shore Club
A. Kimball Co.	1236	
Kimberly-Clark Corp.	1105	Palmer House
Kimble Glass Co., Sub. Owens-Illinois Glass Co.	1006	Sherman
Kleen-Stik Products, Inc.	1254	Palmer House
Koppers Co., Inc.	965	Palmer House
Labelette Co.	1230	
Lectromatic Devices, Inc.	609	
Lemmon and Snoap	795	
Link Belt Co.	1179	
Long & Co.	413	
MRM Co., Inc.	1170 -72	Sherman
Machine O'Matic, Inc.	1225	
Manhattan Paste & Glue Co., Inc.,	749	Palmer House
MarkAndy, Inc.	227	
Markem Machine Co.	1250	
Marsh Stencil Machine Co.	1226	Bismarck
Martin Engineering Co.	665	
Massachusetts Plastic Corp.	634	Palmer House
Mercury Heat Sealing Equipment Co.	738	Palmer House Sheraton
Merrill Machinery Sales Co.	753	
Mid-States Gummed Paper Co.	1205	
Miller Wrapping & Sealing Machine Co.	814, 822	
Milprint, Inc.	884	
Minneapolis Sewing Machine Co.	1277	
Minnesota Mining and Manufacturing Co.	1025	
Modern Materials Handling	1150	
Modern Packaging	1013	
Mojonnier Associates, Inc.	876	
The Monarch Marking Systems Co.	669	
Kenneth J. Moore & Co.	1110	
Morris Paper Mills Div., Federal Paper Board Co., Inc.	502	
Mosstype Corp.	1136	Morrison
The Multistamp Co.	777	
Mystik Adhesive Products, Div. Chicago Show Printing Co.	218	
Nalbach Engineering Co.	639	
Nashua Corp.	1130	LaSalle
National Adhesives Div., National Starch Products Inc.	950	Sheraton
National Bundle Tyer Co.	731	
National Can Corp.	786	
National Container Corp.	995	Conrad Hilton
National Equipment Corp.	989	
National Metal Edge Box Co.	1035	
National Spangle Corp.	646	
Nesbit Industries, Inc.	791	
New Era Manufacturing Co.	1188	Morrison
New Jersey Machine Corp.	1114, 1118 -22	Palmer House
Ogden Manufacturing Co.	769	
Olin Mathieson Chemical Corp., Film Div.	905	Palmer House
Olin Mathieson Chemical Corp., Forest Products Div.	905	Drake
Oliver Machinery Co.	853	Congress
Owens-Illinois Glass Co., Glass Container Div.	1006	Sherman
Oxy-Dry Sprayer Corp.	1276	
Pack-Rite Machines, Div. of Techtmann Industries	1054	Harrison
Packaging Industries Ltd., Inc.	1002	Bismarck
Packaging Parade	1049	
Packing & Shipping	613	
Paisley Products, Inc.	1139	Congress

Hours of the Exposition

Monday, April 8 — 10 a.m. to 6 p.m.
Tuesday, April 9 — 10 a.m. to 9 p.m.
Wednesday, April 10 — 10 a.m. to 6 p.m.
Thursday, April 11 — 10 a.m. to 3 p.m.

Hours of the Conference

Monday, April 8 — 9:30 a.m. to 12:30 p.m.
Tuesday, April 9 — 9:00 a.m. to 12:30 p.m.
Wednesday, April 10 — 9:00 a.m. to 12:30 p.m.

These are the hotels where exhibitors are staying

Ambassador
N. State & E. Goethe
Superior 7-7200

Bismarck
171 W. Randolph
Central 6-0123

Chicago Athletic Club
12 S. Michigan
Central 6-7500

Congress
520 S. Michigan
Harrison 7-3800

Conrad Hilton
720 S. Michigan
Wabash 2-4400

Drake
E. Lake Shore Drive & N. Michigan
Superior 7-2200

Eastgate
162 E. Ontario
Superior 7-3580

Harrison
65 E. Harrison
Harrison 7-8000

Knickerbocker
163 E. Walton
Whitehall 3-2000

Lake Shore Club
850 N. Lake Shore Drive
Whitehall 4-4850

Lake Shore Drive
181 E. Lake Shore Drive
Superior 7-8500

LaSalle
LaSalle & W. Madison
Franklin 2-0700

Morrison
79 W. Madison
Franklin 2-9600

Palmer House
State & Monroe
Randolph 6-7500

Sheraton
505 N. Michigan
Whitehall 4-4100

Sheraton-Blackstone
S. Michigan & E. Balbo
Harrison 7-4300

Sherman
N. Clark & W. Randolph
Franklin 2-2100

Sherry
1725 E. 53rd
Fairfax 4-1000

Stock Yard Inn
W. 42nd & S. Halsted
Yards 7-5580

Windermere East
1642 E. 56th
Fairfax 4-6000

EXHIBITOR	BOOTH	HOTEL
Pak-Rapid, Inc.	641	
Permacel Tape Corp.	826	
Perry Industries, Inc.	679	Sheraton
Peters Machinery Co.	1126	
The Pfaudler Co.	622	
Pierce Wrapping Machine Co.	694	
Pitney-Bowes, Inc.	629 -33	Palmer House
Plastic Container Corp.	783 -85	Drake
Plastic Jewel Co., Inc.	646	Palmer House
Plastic Packaging Corp.	1245	Congress
Plastics World	685	
Plax Corp.	963	Conrad Hilton
Pneumatic Scale Corp., Ltd.	1149	Palmer House
Polyken Sales Div., The Kendall Co.	865	
The Poly-Seal Corp.	1162	
Pontiac Engraving & Electrotype Co.	1279	
Popper & Sons, Inc.	1235 -39	
Potdevin Machine Co.	1133	Bismarck
The Printing Machinery Co.	743	Harrison
Putman Publishing Co.	302, 401	
Pyroxylin Products, Inc.	663	Windermere East
Queen City Tulatex Corp.	1246	
W. Ralston & Co.	224	
Rapid Ribbon Corp.	1258	Sheraton
The Rapids-Standard Co., Inc.	424	
The Raymond Corp.	207	
Reliance Electric and Engineering Co.	1194	LaSalle
Reynolds Metals Co.	925	Conrad Hilton
Rheem Manufacturing Co.	423	Palmer House
J. A. Richards Co.	617	Harrison
Riegel Paper Corp.	332, 433	Palmer House
W. C. Ritchie & Co.	730	
Rosenthal Manufacturing Co.	229	
St. Regis Paper Co.	1075, 83, 89, 95	
Scale Specialties & Systems, Inc.	415	

AMA CONFERENCE PROGRAM

American Management Association is holding its 26th annual National Packaging Conference April 8-11 in Chicago's Palmer House. Following are the scheduled addresses and speakers on the program of the conference.

Monday, April 8th:

9:30 a.m. to 12:30 p.m. *Packaging — a dominant factor in today's consumer markets;* addresses by A. C. Nielsen, Jr., executive vice president, A. C. Nielsen Company, Chicago, and Dr. Harry C. Trelogan, director, marketing research division, agricultural marketing service, United States Department of Agriculture, Washington, D. C.

A. C. Nielsen Company, a market research organization, is continuously conducting research into consumer markets. Mr. Nielsen will report on his firm's market research into such questions as, How effective is packaging in today's market? What are the trends? How are the successful merchandisers using packaging to obtain preferred position in stores? How can packaging influence customers' decisions to buy?

The Department of Agriculture through joint research with the packaging industry is providing packages that are economical and that do a better selling job for perishable products such as dairy, poultry, meat, fruit, and vegetable items. Dr. Trelogan will highlight those marketing problems on which packaging research has yielded worthwhile results.

Tuesday, April 9th:

9 a.m. to 12:30 p.m. Concurrent session. In the Grand Ballroom, the H. J. Heinz Company will present a panel discussion. Participating will be C. L. Rumberger, vice president, research and quality control; K. F. Lang, head, packaging and sterilization department; Ian MacPhail, department head, statistical quality control, and F. C. Majorack, manager of product development.

The panel presentation will include: The history of packaging at Heinz; divisional organization; statistical quality control; package development; cost reduction program; development of specifications and tolerances; packaging research; relationships among purchasing, quality control, and suppliers, and packaging design.

In the Red Lacquer Room the concurrent panel session will cover the packaging of industrial items, presented by the Bendix Aviation Corporation, South Bend, Ind. Members of the panel are: Chairman, E. K. Gustin, packaging engineer, Bendix products division, South Bend, Ind.; A. O. Mooney, traffic manager, Bendix Eclipse-Pioneer division, Teterboro, N. J.; R. E. Chrisman, traffic manager, Bendix Pioneer-Central division, Davenport, Iowa; T. E. Shelly, traffic manager, Bendix Marshall Eclipse division, Troy, N. Y.; and E. E. Gollnick, aircraft service packaging coordinator, Bendix Aviation Corp., South Bend, Ind.

This panel will discuss the Bendix packaging organizational set-up, its operation at both staff and line levels. They will outline the responsibilities of the packaging engineers and how these responsibilities are carried out at this company. It also will present case histories of Bendix's outstanding packaging accomplishments.

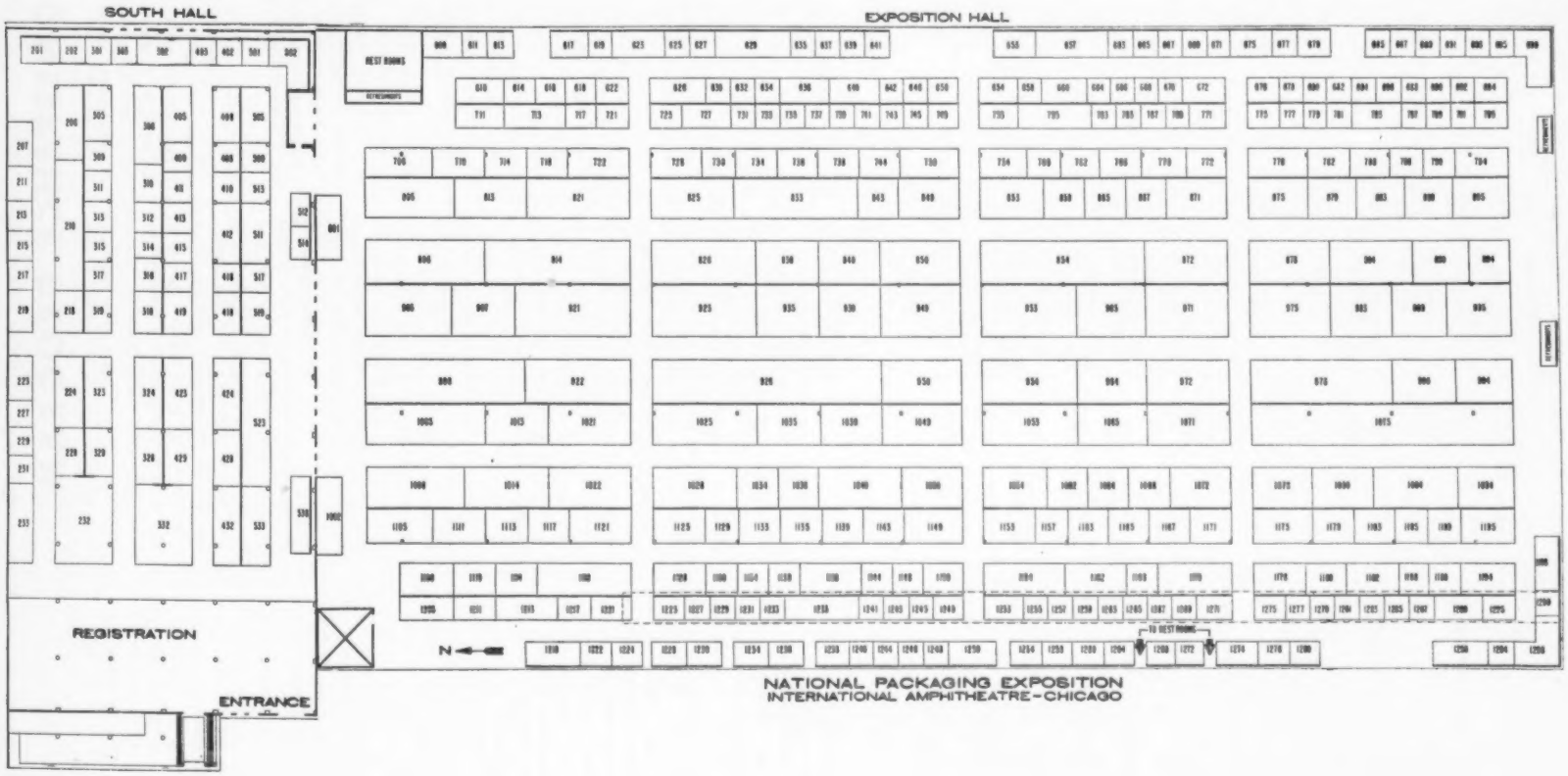
Wednesday, April 10th

9 a.m. to 12:30 p.m. *Package design and testing procedures for shipping cases,* a panel discussion presented by the Forest Products Laboratories, United States Department of Agriculture, Madison, Wis. Members of the panel and their subjects are: Chairman, K. W. Kruger, chief, division of packaging research; cushioning, R. K. Stern, technologist; pallets, T. B. Heebink, engineer; wooden boxes, R. S. Kurtenacker, engineer; crates, L. O. Anderson, engineer, and fibreboard boxes, K. Q. Kellicutt, engineer.

These packaging engineers will discuss design and the latest testing procedures for pallets, wooden boxes and crates, and fibre and corrugated cases. The panel will present a resumé of the work that has been done to date in developing procedures for testing container characteristics that may be correlated to shipping performance, and will analyze the work currently being done by their laboratory and cooperating agencies. They also will discuss the development of design data and the use of fibreboard in shipping containers.

EXHIBITOR	BOOTH	HOTEL
G. T. Schjeldahl Co.	219	LaSalle
Schroeder Machines Corp.	1053	Conrad Hilton
Seal-O-Matic Dispenser Corp.	1267	Morrison
Seal-Spout Corp.	1129	
The Seamless Rubber Co., F.O.S. Industrial Tape Div.	765	LaSalle
Shear-Prints Associates	767	
Shipping Management, Inc.	1227	
Shopsin Paper Co.	632	Palmer House
Signode Steel Strapping Co.	824	
The Simco Co.	1185	Sherman
Simplex Packaging Machinery Inc. Div. Food Machinery & Chemical Corp.	814, 822	Palmer House
Sinclair and Valentine	825	Palmer House
H. P. Smith Paper Co.	618	Stock Yard Inn
Soabar Co.	1263	LaSalle
Southern California Plastic Co.	787	
Southern Special Products Corp.	1035	Congress
Speedry Products, Inc.	1244	Conrad Hilton
Spencer Chemical Co.	895	
Standard Knapp Div., Emhart Manufacturing Co.	850	Bismarck
Standard Packaging Corp.	872	
Stanford Engineering Co.	1076	Palmer House
E. G. Staude Mfg. Co., Inc.	935	
Stein, Hall & Co., Inc.	1176	
Sten-C-Labl, Inc.	625	
Sterling-Fleischman Co.	1285	
Sterling Seal Co.	1195	Congress
F. J. Stokes Corp.	1274	
Stokes and Smith Co., Sub. of Food Machinery & Chemical Corp.	814, 21, 22	Palmer House
Stone Container Corp.	730	
Sun Chemical Co.	1072	
Swift & Co., Adhesive Products Dept.	849	
Technical Tape Corp.	224	
Tee-Pak Inc.	889	
Toledo Scale Co.	879	
Tompkins' Label Service	1117	Palmer House
Triangle Package Machinery Co.	1180	
Tri-State Plastic Molding Co.	611	
Tri-Wall Containers, Inc.	672	Bismarck
Union Bag Camp Paper Corp.	972	
Union Paste Co.	990	Palmer House
Union Steel Products Co.	871	Lake Shore Drive
United Shoe Machinery Corp.	412, -14	Knickerbocker
U. S. Armed Forces	208, 216	
U. S. Bottlers Machinery Co.	1163	Palmer House
U. S. Engineering Co.	1222	
U. S. Industrial Chemicals Co.	533	Sheraton-Blackstone
The U. S. Metered Container Corp.	1240	Ambassador
The U. S. Printing & Lithograph Co.	232, 333	Palmer House
United States Steel Products Div., United States Steel Corp.	215	
Vac-Tie Fasteners, Inc.	741	
The Varigraph Co.	614	Sherman
B. Verner & Co., Inc.	429	LaSalle
Vertrod Corp.	619	Palmer House
Visking Co., Div. of Union Carbide and Carbon Corp.	939	Sheraton
Waldorf Paper Products Co.	1071	Palmer House
Walton Laboratories, Inc.	776	Bismarck
S. D. Warren Co.	319	Chicago Athletic Club
Washington Steel Products, Inc.	636, -38	
Web Control Corp.	726	
Weber Marking Systems, Div. Weber Addressing Machine Co.	1233	
Weigh Right Automatic Scale Co.	1289, -91	
West Instrument Corp.	316	
Western Stoneware Co.	202	
Weyerhaeuser Timber Co.	1268	
Williamson Adhesives, Inc.	654	
Wolverine Paper Converting Machinery Corp.	650	
Wood Conversion Co.	1224	
Wrap-Ade Machine Co., Inc.	775	Sheraton
Wrap-King Corp.	754	Palmer House
Wright Machinery Co.	1050	Morrison
Wyomissing Glazed Paper Co.	818	Ambassador
York Tape Printers, Inc.	760	Palmer House

Tear this section out of the magazine, take it to the show — as a handy guide



Here is your floor plan, showing where the booths are

some purchased. During the winter of 1956 - 1957 when some unusually cold weather, even sub-zero weather occurred, followed by mild days of high humidity, the problem became acute.

On such days the bottles actually dripped water, a condition that was remedied by installing additional heating units on the line, as shown in Fig. 2. The original setup, as shown in Fig. 1, had a heater on one side of the bottles. Under the new setup a heater was placed on both sides.

Preventing Overheating

While the additional heater was able to prevent the condensation of moisture on extra-cold bottles, the problem of overheating them during line stoppages was aggravated. Furthermore, it was difficult to pull the hot bottles out of the double heater. The need for some way to prevent overheating and subsequent thermal shock breakage became imperative.

After various trials a successful method was finally developed. In principle it is very simple: Shut off the power from the heaters 15 seconds after a line shut down occurs. In practice it was not so easily accomplished, but here is how it was done. A Cramer percentage timer was inserted in the power line to the two 220 volt-5 amp. heaters. An adjustable feature on the timer permits varying the time between line stoppage and power cutoff to the heaters as the need arises.

Use Toggle Switches

Another development was the insertion of toggle switches in the lines leading to each of the six heating coils in the heaters. The heaters are six coils high and about three feet long. In the early days of using this type of bottle heater all coils were operated regardless of the height of the bottles. At present the coils that extend above the tops of the passing bottles are usually cut out by the appropriate toggle switches to avoid a needless waste of power.

Careful adjustment of the percentage timer is made so that the power goes off and on when the bottles are passing through the heating zone in the normal manner. This cutting in and out is revealed by a red signal light on the control box and is to avoid waste of heat. If the bottles are unusually cold or if the relative humidity of the ambient air is so high that condensation occurs on the bottles, the timing adjustment is turned higher, thus producing higher temperatures in the heating coils.

The safeguarding feature to avoid overheating is, however, something else. The percentage timer is connected with the stop-switch on the filler as the control point. As soon as the filler is shut down, the timer, in turn, will shut off the power to the heaters after a predetermined number of seconds have elapsed. Usually the time lag is 15 seconds, but it can be varied at will by adjusting the setting of the dial on the control panel.

At the outset it had been feared that the method of shutting off the power to avoid overheating would still result in bottles becoming too hot from the residual heat in the heaters, but experience has shown that the residual heat in the coils and their thermal insulation is not sufficient to cause any trouble. At the time of writing, the system is proving to be a satisfactory automatic method of avoiding both condensation problems in cold weather and the related problem of overheating the bottles.

Watch out for temperature changes

Those intimately acquainted with the subtleties of high speed labeling of round containers know that the subject presents enough problems without the added handicaps of temperature deviations. The experience of Pharmaceuticals, Inc. in solving this problem emphasizes the importance of an engineering approach to problems of this sort. At the same time, it is imperative to take a thoroughly practical approach so that production is not disrupted in the course of solving the difficulties of labeling when containers are below the dew point. The trouble is that solving one problem often injects another problem into the operating scene. When this company found that an additional heater prevented condensation of moisture on extra-cold bottles it also injected the difficulty of overheating them during line stoppages. It had a new situation to work with. The method as finally evolved deserves the careful attention of those contemplating a similar solution. The important thing is to consider the problem as an entirety rather than to examine merely one of its segments. Total success depends on attention to the totality of the difficulties.

Ted Zalewski joined the Robert A. Johnston organization following his service as a U. S. Air Force pilot during World War II. After extensive service "on the road" in a selling capacity, he became a time-study man and has since worked his way up through a sequence of positions to his present post. He has studied industrial management through the extension division of the University of Wisconsin. He is a member of the Industrial Management Society and participates in the work of such organizations as American Management Association, of which his company is a member.

Industrial engineers of the Robert A. Johnston Company faced the problem of developing and installing a packaging line within a confined area, with three of its four dimensions fixed by physical barriers. Also, they had to design a line geared to flexibility of product and package changes. While doing it they found several opportunities to use a gravity flow of packaging. This article tells how they worked out a line meeting these needs and at the same time capitalized on gravity.

Fitting a packaging line into a confined space

By Ted Zalewski,
Chief Industrial Engineer,
Robert A. Johnston Company,
Milwaukee

In making the most of limited space when laying out a packaging line, we think it is important to capitalize on gravity flow. This is especially so where numerous product and package variations arise. We found we could take advantage of gravity even though we have a strictly horizontal flow of product to be packaged. Our experience in developing one of our lines for chocolate mint patties bears this out. In our plant gravity flow contributes to (1) keeping a line flexible, and (2) using minimum floor space for it.

We began with several fixed dimensions. Since the product requires an extreme length of cooling, we have a Greer cooling tunnel approximately 150′ long. It connects with our Greer enrober. The outlet end of these two units established one dimension of our packaging room for this line. A second dimension was the building wall itself. The third was the location of an adjoining packaging line used for soda crackers, which determined the width of the room, i.e., 27′. A fourth limiting factor was the tying in of the line with our flow and disposal of filled cases via our spiral chute system, which involved about 75′.

Making U-Turn

One of our first problems was to make a complete U-turn of 180 degrees. This was necessary because the flow of cookies came out of the cooling tunnel and had to be turned 180 degrees to go down the packaging line, which runs parallel to and in the opposite direction to the cooling tunnel. We had to make this turn in an area approximately 7′ in radius.

Our solution to this problem was to install a series of canvas belts. Thus, the cookies discharged from the cooling chamber belt in rows 16 cookies wide on a 42″ belt. This delivers them to a belt of the same width which makes a 90-degree turn. Leaving this belt, the cookies move to a 3′ section of straight belt. From here they go to another 90-degree belt, making a similar turn. Leaving this unit, they move to a 33″section of straight 42″ belt. This feeds the main belt of the packaging line.

Our reason for injecting the short section of straight belt is that some items have to be stacked before packaging, although we do not stack our mint patties. Having the short intermediate belt helps the stacking operation since it is about 1½″ above the plane of the main packaging line belt. This belt, also 42″ wide, is about 25′ long.

Deck For Carton Forming

To provide extra space and capitalize on gravity, we built a mezzanine or deck at the end of and above the turning section. This deck (which is 27′ by 12′) is 5′ above floor level and makes possible the gravity delivery of individual cartons as well as caddies. It also provides storage space for daily needs. The deck holds our Kliklok carton forming unit, a standard machine similar to others used on our lines. This particular unit is equipped with change parts for three different sizes of cartons.

Other Kliklok units on our lines handle more than three sizes. We use a set of chutes to deliver production from this machine to both sides of the main packaging line belt. Since one chute has to divide into two, we have provided a pair of vertical metal dividers which can be kept close together or spread apart depending on whether we want the empty cartons at the edge of, or closer to, the center of the chute prior to splitting into two chutes.

By using a coil spring at the meeting point of the vertical dividers, we have a certain elasticity. We merely put in blocks or separators to keep these dividers apart. When we want wide chute space, we take the blocks out.

Before reaching the dividers, cartons emerging from the Kliklok unit go through an alternator feed of our own development. This divides the production from the Kliklok unit into two fields. From here they pass the

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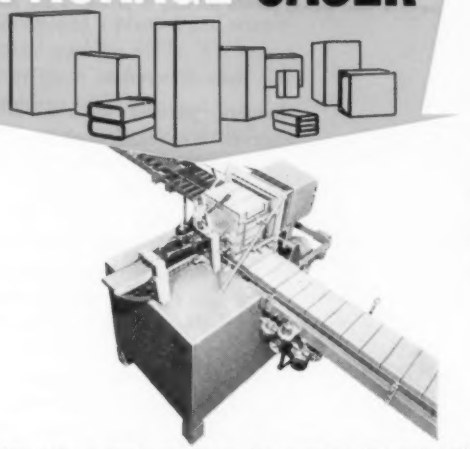

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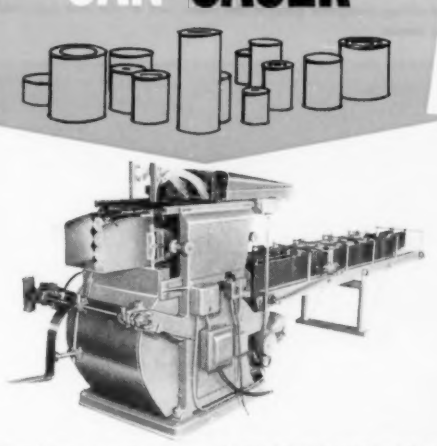

Smooth and gentle as its name, the FMC "Non-Shock" caser places cans into cases completely free of damaging impact to cans, labels or product.

Speeds up to 1200 cases per hour can be attained, limited only by the speed of the single operator. Automatic in operation, the filled case lowerator arm and tiered can pusher arms are activated as empty carton is slipped over loading chute.

Cans enter machine in *upright* position, move smoothly down woven wire belt. There's no rolling, no seam-to-seam impact nor seam-splitting action of steep gravity-roll contact.

Compact and flexible, FMC "Non-Shock" Casers are ruggedly built for long life, handle specific can sizes and certain combinations from 202 x 308 packed 6 x 8, to 603 x 700 packed 2 x 3.

Whatever your problem—can labeling, casing, sealing—FMC packaging engineers welcome the opportunity of reviewing them with you. If your product is packaged in a box, carton, can, or other rigid or semi-rigid container, or if the product itself takes a rigid shape, chances are you can case it better for less with FMC precision-engineered equipment. Send full details for prompt reply. No obligation, of course.

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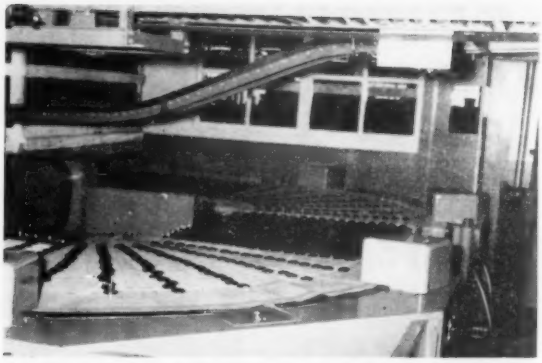
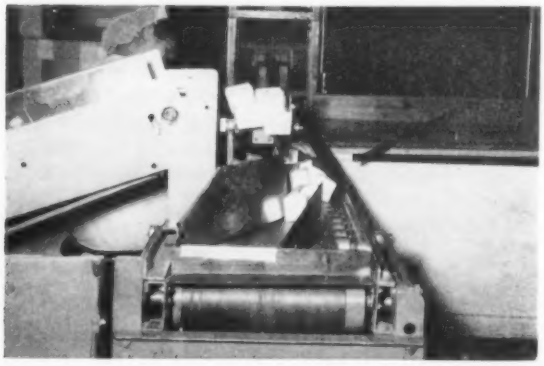
Taking production from the 42" packaging line belt in the center, these girls fill the cartons riding on the 8" belts parallel to and just below the level of the main belt. Empty cartons reach these belts from the mezzanine seen at rear. Starting with a flow of production 16 cookies wide, the girls nearest the far end of the line take the outermost cookies and so on along, until the girls at the near end of the line are taking those at the center.



This 180-degree turn takes place within a 7' radius. The flow of product moves from left to right (as seen at rear), makes the turn, then moves from right to left down the packaging line — not visible in photo. A series of canvas belts provide the turning means. Cookies at far left pass to a 33" section of 42" belt which feeds the main packaging line belt. Use of a short section permits stacking of product where necessary.

Operating at 58 to 60 cartons a minute, this Kliklok carton former delivers its production to the dividing mechanism seen in foreground. The arrangement is designed to deliver empty cartons to both sides of the main packaging line belt. This equipment is located on a deck 27' by 12', positioned 5' above floor level, making possible the gravity delivery of individual cartons as well as caddies.



This alternator feed of the company's own development divides the production from the Kliklok unit into two files. In addition to holding the Kliklok unit, this balcony or deck also holds supplies of caddies. When the packaging line is doing the bulk packing of caddies, the Kliklok attendant keeps the lines supplied with formed empty caddies. Two gravity conveyors, one for each side of the main packaging line, are used for the transfer of bulk containers.

dividers parallel to the flow of cartons. We could operate this machine without an attendant, but we think there should be a girl to oversee the operation. She clears any jams that take place as the cartons go through the dividing operation.

The speed of our enrober requires a flow of 58 cartons a minute. Our normal speed on this Kliklok machine is 58 to 60 a minute. From time to time the operator steps this up in order to build a reserve. Thus, when her machine is down for any reason, she can feed the line from the reserve supply. Once cartons go on the chute and through the dividers, they move in two files down the gravity chute to the packaging line. They travel on 8" belts, one on each side of, and just below the level of, the main packaging line belt.

Handling Of Caddies

Another job of the girl on the deck is to set up empty caddies for bulk packing. These arrive in flat bundles, move to the balcony, and from there go to the conveyors leading to the line.

There are two gravity conveyors, one for each side of the main packaging line to which these conveyors run parallel. These are used for bulk packing, which takes place on the main line, as scheduled to dovetail with the packaging of individual cartons.

The installation of chutes for Kliklok cartons and conveyors for empty caddies emphasizes the flexibility of this line. Underlying the need for flexibility is the necessity of handling an uninterrupted flow of products emerging from the band oven and hence from the cooling conveyor. The basic idea involves switching to caddie packing whenever there is an interruption in the packaging of individual Kliklok cartons.

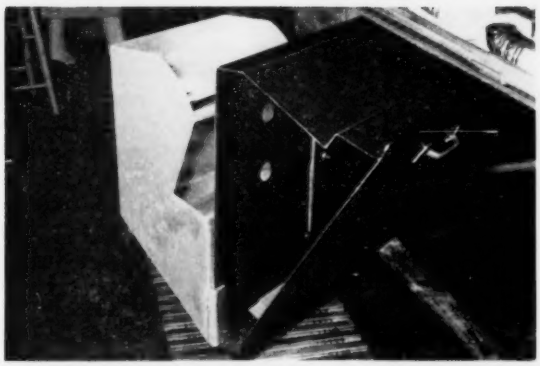
Similarly, short runs and varying product lines handled on this line give emphasis to our need of flexibility. To help our girls do a more efficient job of caddie packing, we have developed a pivoted and retractable metal packing guide. We have a series of these underneath each side of our main packaging line.

When our attendants switch to caddie packing, they merely swing out their metal guides, then raise the retractable unit to working level. A slanting rack holds the caddie being packed and the retractable racks hold materials. There are two positions on the retractable unit, one for caddies and one for tins which are packed from time to time. While the caddie packing units are in use, the 8" belts paralleling the main packaging line belt are stopped.

Across the working aisle from our main belt and located under the gravity conveyors handling empty caddies are the out-going conveyors to take away filled cases or caddies. These emphasize the insistence we place on flexibility.

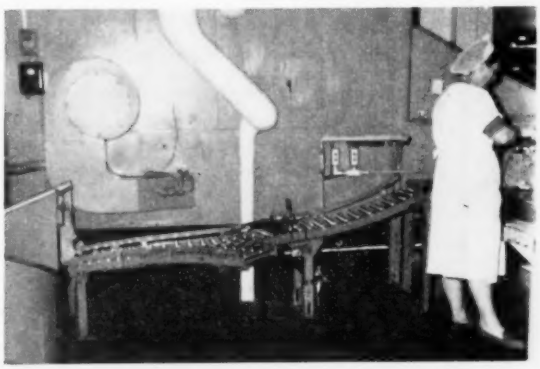
How Girls Operate Line

During normal packaging operations, we have from seven to 16 girls along our main belt. In other words, from three to eight on each side. A typical operation for the packaging of mint patties calls for seven girls. The length of our belt permits us to add others when necessary for the packaging of any particular product. Since the cookies start past the girls in rows 16 wide, the first girls along the line pick up the cookies in the outside files, the second girls take those next in, and so on. In other words, they work progressively to-



To facilitate packing of caddies, the packaging line has a series of these pivoted and retractable metal packing guides. As soon as a girl swings out a rack, she raises it to working level. Its surfaces are angled to provide one position for caddies and one for tins, which are packed from time to time. Since individual cartons are being packaged here, this unit is not in use and has been pulled out merely to illustrate its details.

This inspection and backlog point is where the two 8" belts carrying filled individual cartons converge. This inspector oversees their entry into the overwrapping unit. Tables hold supplies of extra filled cartons to serve as a backlog when needed. This operation could be fully automatic, but the plant feels that this inspection is a desirable check on product and package quality.



These conveyor units lead to the entry point of the spiral chute system for take-away of filled cases, as seen at left. Attendant at right is completing cases of filled and overwrapped individual cartons. Equipment seen in background emphasizes the problem of locating this packaging line: The position and arrangement of the cooling tunnel and enrobing unit, a building wall itself, the location of an adjoining packaging line, and the tying-in with the case chute system, prescribe the four dimensions of the packaging line area.

ward a point at which all cookies are picked off the belt.

We train our girls to use both hands in picking up the cookies. The difficulty here is that the first girl on each side has to use one hand to straighten the carton coming down from the deck conveyor. But the others may use both hands since the cartons are in position by the time they reach them. We train the girls to pick up first the four cookies which they place vertically at one end of the carton, then the eleven which they place horizontally, thus completing a 15-count package.

Once individual cartons receive their content of cookies, they move on the 8″ canvas belts, which lead to a powered conveyor on each side. These powered conveyors carry the two files of cartons to a gravity chute. This, in turn, leads to an overwrapping unit. Both files feed to a single point which is the in-feed of the unit, a standard Battle Creek machine.

We could have an entirely automatic feeding operation, but we feel there should be an inspection of the completed packages prior to overwrapping. Also, we find other advantages in having a girl here. She also does some incidental straightening of the cartons feeding into the overwrapping machine. There are two backlog tables at this point to permit the piling up of individual cartons while there is a roll stock change on the wrapping machine. In other words, the attendant can supervise the steady flow and can pile cartons on the tables when necessary. Or she can feed the machine from tables when no flow is coming along the main chute.

Chuting Out The Cases

Completed packages leaving the overwrapping unit are ready for casing. Our supply system for cases also illustrates our emphasis on gravity. We have a narrow (7′ wide) balcony to our packaging line. On this balcony a girl stitches corrugated containers using an Ideal stitching unit. Completed boxes feed by gravity chute to the case loading point. We have designed our cases so that a girl can insert four cartons at a time.

At the end of the line and at the lower end of the gravity flow point, a girl closes and tapes the filled cases using a Better Packages Counterboy taping unit. As completed cases move on the outgoing conveyor, they pass a Kiwi code dater which stamps product identity, as well as the date, on cases passing through. Once secured, cases pass to the spiral chutes which are part of our plantwide system for disposal of cases of finished goods. These spiral chutes carry the production of various packaging lines to the case disposal area of the plant.

We have developed a way of connecting our out-going conveyor with the gravity conveyors handling filled caddies. We bring down a conveyor bridge which crosses our main packaging line. Then we put in a portable section of curved conveyor and remove the two carton channels from their positions along the main belt. This gives us a direct take-away of cases or caddies to the belt leading to the spiral case disposal system.

In the course of this operation, our caddies go to a scaling station where a girl operates a Toledo scale as a checking unit. After each caddie is checked, she covers it, closes it, and sends it to the outgoing case system, just as with the cases of individual packages. These go to the plantwide system of case disposal.

How Long A Belt?

Since major equipment and building walls fixed the dimensions of three sides of this packaging line area, our principal dimensional question concerned its length. In deciding how long to make our main belt, we considered our past packaging experience with the products we wanted to handle and then added enough belt length to allow tolerance for future expansion.

We also considered factors such as the difficulty of packing or the relative ease of handling manually the various items on our line. This added up to our 25-foot belt length, thus allowing us to work as many as 18 people into the line, depending on a particular product, the speed at which it is produced, and the time required for its packaging.

We also have enclosed this packaging line to make it a separate room. This is necessary to maintain a controlled atmosphere in it. We have to have this controlled atmosphere in order to keep the chocolate from blooming and to contribute to uniformity of product.

Problems of switching to bulk

Because these packaging operations receive product from a continuous process (i.e., the oven), it was imperative to provide for the alternate packaging of individual and bulk containers. Those faced with similar problems should study Mr. Zalewski's provision of parallel facilities on the same lines. The simplicity and ease of making the switch emphasizes the necessity of doing it in the least possible time — since the flow of cookies and crackers may not be stopped. A significant feature of his success in providing these facilities within the limited space available is his emphasis on maximum flexibility of manual operations, consistent with the machinery requirements of the line.

C. Ray Irons is a graduate of West Virginia with a B.S. degree in mechanical engineering. After teaching there for one year, he was associated with Duquesne Light Company, Pittsburgh, on boiler and turbine testing and maintenance operation. In 1947 he joined Socony Mobil as a turbine lubrication engineer. Subsequently he joined its New York engineering division and in 1955 became assistant package coordinator. His experience includes close association with his company's compounding, grease manufacturing, and packaging operations. He has been active in the petroleum packaging committee of Packaging Institute.

Now we have a quantitative engineering approach to the designing of filling line speed. Step by step, this landmark study outlines the method and supplies the computations involved in working out the designed speed. But the formula is not theoretical: Mr. Irons relates it very closely to normal operating conditions and discusses it in the light of production realities.

Designing a filling line for optimum filling speed

By C. Ray Irons,
Assistant Package Coordinator, Socony Mobil Oil Company, Inc., New York

"What shall be the designed speed of our contemplated filling line?" People who bear the responsibility for providing the answer to this question should have a more sound approach to it than mere "guess-timating". Whether it is the purchase of a new, complete filling line, replacement of a part of an existing installation, or simply alteration of present equipment, a variety of factors should be considered before the final decision is made.

Naturally, a line that provides "optimum" performance is the ultimate goal. But just what comprises "optimum" performance? Two years ago, the petroleum packaging committee of Packaging Institute established a study group to seek a solution to this question. This group finally determined that, although there can be no magic formula to provide a concrete answer, there is available a sound, mathematical approach that will provide part of the solution. This formula when coupled with sound judgment, based on experience and practices, will give a good indication of what line speed is best for the operation under study.

Before delving into the mathematics involved in "optimum" line speed, the definition of "optimum" line speed should be clarified. A line which utilizes manpower to the best advantage, provides adequate inventory of filled packages, and shows maximum return on capital investment should come close to being the "optimum" line.

If this definition is accepted, then there are three points which must be resolved in arriving at the solution:

(1) Manpower.
(2) Package thruput (inventory requirements).
(3) Capital investment.

Package thruput and capital investment readily lend themselves to mathematical solution. This will be amplified later. However, the manpower question is the most difficult to analyze. This is where experience with and knowledge of the specific operating conditions enters the picture.

To illustrate this, consider Plant A with a can filling line-crew of seven. Sales volume of this product is such that with present equipment it is only necessary to operate two days a week. For the other three days, these seven men are utilized in other operations. Now Plant A finds it necessary due to obsolescence to replace the can filling line equipment.

So the question arises: Shall equipment with twice the speed be purchased or shall it be replaced with modern equipment of the same capacity? There would be certain advantages to a high speed line. It could be operated at three-fourths of rated speed to insure accuracy of fill and a cleaner package. It would assure reserve capacity for emergencies without necessitating overtime.

The disadvantage lies in the greater capital investment needed for higher speed equipment. In addition, the utilization of manpower becomes involved. Is it good economy to operate equipment below rated capacity merely to consume man hours for which there is no other useful employment?

Collective bargaining agreements affecting transfers or reduction of force due to the introduction of higher speed equipment could discourage the introduction of such equipment that could very well be required in the future as a result of an increase in sales. These, then, are the questions which cannot be solved mathematically when a completely new installation is under study.

As a further illustration, consider Plant B with an existing line capable of 250 units per minute. This speed is limited by the case packer only. The other equipment has a capacity of 350 units per minute. If a new case

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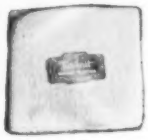

The Oliver handles a wide range of package sizes. Its one-man operation and quick-adjustability speed production. The Oliver wraps many products: paper specialties, textiles, baked goods, meats, and products only remotely similar. It wraps them neatly, securely and rapidly. Using modern wrapping materials it heat-seals or glue-seals your package for utmost protection. A colorful diecut label can be heat-sealed to package. Infeed conveyors in various lengths. An electric eye registers printed wrappers. Choose from 8 models—speeds up to 50 a minute. Even with short runs and frequent changes, down-time is low. Write for details.

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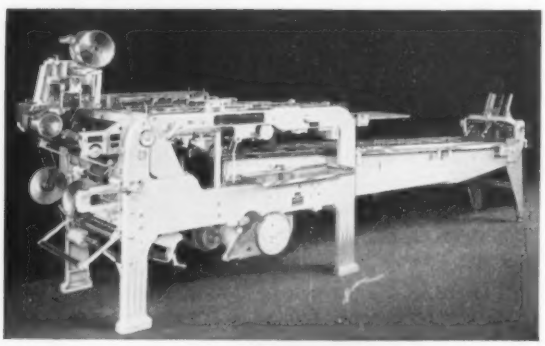

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packer is purchased, the increase in speed will throw additional work load on the existing crew and there may be employee pressure to add an additional man to the crew thus negating the advantage gained in line thruput.

Another example can be gained from Plant C. This plant employs two men to manually palletize filled packages. By purchase of an automatic or semi-automatic palletizer, this pair could be reduced to one man. However, the labor policy of the plant dictates that suitable work at an equivalent pay rate must be provided for the person displaced. Again, advantage is lost.

These examples were provided only to show that filling line speed and equipment have a bearing on and are affected by labor policy and requirements. This is the human element of the design problem. It is not intended to offer a solution for this aspect since it varies with each installation. The point is that such problems do exist and must be recognized to the extent that they are carefully considered along with the other two factors influencing filling line speed.

Designing a line to properly fulfill inventory requirements is a problem with a more concrete approach.

It is a fairly simple matter to calculate an average filling line speed. This would be the total annual sales in units divided by the number of operating minutes available during the year. In mathematical form:

$$\text{Average filling line speed} = \frac{S}{120{,}000 - 10N}$$

where S = total annual sales in units
120,000 minutes = 250 eight-hour days per year
10 minutes = changeover time between runs
N = number of runs, or changeovers, made per year

To be realistic, we should recognize that the line will operate at something less than maximum efficiency, and a realistic goal is 95%. Line efficiencies vary widely in different packaging plants with some as low as 60% and others as high as 98%, but a sound working average of well maintained and well operated plants is 93% to 97%. These efficiencies are determined by the formula:

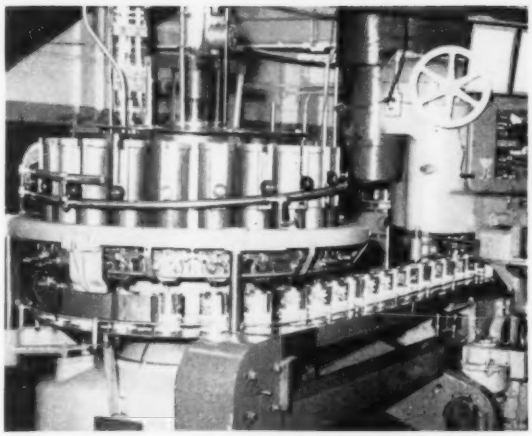
$$\text{Line efficiency} = \frac{\text{Actual number of units produced per day}}{\text{Maximum line speed in cans per minute times the actual number of minutes scheduled for operation in a day.}}$$

This formula penalizes efficiency if there is a large number of changeovers during the working day. It is a fundamental premise that good scheduling will keep product changes at a minimum and that numerous product changes constitute inefficient operation.

If efficiency is considered in the formula for average filling line speed, we have:

$$\text{Minimum required filling speed} = \frac{S}{0.95\ (120{,}000) - 10N} = \frac{S}{114{,}000 - 10N} \qquad (1)$$

It is obvious that, if warehouse space were unlimited and warehousing costs were negligible, the number of runs could be limited to 250 since the machine must be set up at least once each working day. Such conditions, however, exist only in theory and it is necessary to determine a reasonable and economical value for N, the



This one-qt. motor oil can filling machine is a typical unit pertinent to the packaging line under discussion. Machine in right background is a lid seaming unit.

number of runs per year, before our formula is realistic.

In order to simplify the mathematical language of the following formula derivation, which considers only one brand, it is necessary to assign symbols to the various elements being considered as follows

Symbol	Description
S_1	Total annual sales of one brand in cans per year
L	Cost of setting up filling machine for one run
m	Cost of filling one can (excluding setting-up costs)
c	Total cost of filling one can
i	Cost of keeping one can in inventory for an R can run
f	Total cost of filling and keeping in inventory one can
R	Most economical run for one brand
C	Total cost of filling R cans
I	Cost of keeping R cans in inventory for an R can run
p	Interest rate
K	Constant — unlimited warehouse space

The most economical number of runs per year is directly related to R or the most economical number of cans to be filled during each run. The total cost of filling R cans is equal to the setting up costs for the machine plus the cost of filling one can multiplied by R.

$$C = L + mR$$

The total cost of filling for one can is:

$$c = \frac{C}{R} = \frac{L}{R} + m$$

Assuming that the manufacturer fills only one brand and that this product is sold at an even rate during the year, R cans will be sold in $\frac{S_1}{R}$ years.

The average inventory of cans will be 1/2 R if we assume that the manufacturer does not keep a minimum

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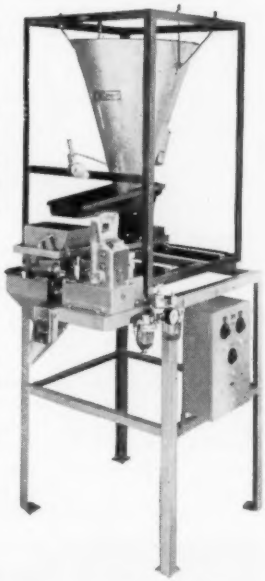

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- ★ Over-Under indicator for visual check to eliminate need for separate check-weighing operation.
- ★ Calibrated adjustments with counterweights of known value, graduated beam; poise and scale indicator.
- ★ Design backed by 40 years experience in specialized weighing.
- ★ Readily accessible service and maintenance facilities.
- ★ Performance guaranteed in writing.

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AUTOMATIC NET WEIGHER

The Net Weigher, shown below, can be supplied without the feeder machine, support frame and discharge chute. Write for complete details.

MODEL 610NW

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Exact Weight Scales

Better quality control
Better cost control

THE EXACT WEIGHT SCALE COMPANY

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For more information circle No. 229 on Card

	TYPE OF INSTALLATION			
	Reship. or Bulk	Reship. or Bulk	Bulk	Bulk — Auto — Packer
Maximum Rate (cans/min.)	150	250	470	470
Crew Size	5	6	9	8
Investment				
Receive & Feed	$____	$____	$____	$____
Filler	____	____	____	____
Packer	____	____	____	____
Other	____	____	____	____
TOTAL	$____	$____	$____	$____
Fixed Annual Expense				
3-year Payout After Taxes	$____	$____	$____	$____
Rental — Sealer	____	____	____	____
250 Grade Changes (@ 10 min.)	____	____	____	____
Total Fixed Annual Expense				
250 Changes/Year	$____	$____	$____	$____
500 " "	____	____	____	____
750 " "	____	____	____	____
1000 " "	____	____	____	____
Operating Cost ($/Mill. Cans)	$____	$____	$____	$____
Breakeven Point				
250 Changes/Year	____ Mill. Cans	____ Mill. Cans	____ Mill. Cans	
500 " "	____ " "	____ " "	____ " "	
750 " "	____ " "	____ " "	____ " "	
1000 " "	____ " "	____ " "	____ " "	
Day Shift Annual Capacity	18 Mill. Cans	30 Million	56 Million	56 Million

This helpful breakdown relates the maximum cans per minute rate with the day shift annual capacity for different items and provides a guide to the items requiring consideration in working out the details.

inventory on hand. Therefore, the cost of keeping inventory for an R cans run will be:

$$I = p \times c \times \frac{R}{2} \times \frac{R}{S_1} = \frac{pcR^2}{2S_1}$$

or the cost of keeping inventory per can is:

$$i = \frac{I}{R} = \frac{pcR}{2S_1}$$

The total cost (filling plus inventory per can will be:

$$f = c + i = c + \frac{pcR}{2S_1} = c\left(1 + \frac{pR}{2S_1}\right)$$

or

$$f = \left(\frac{L}{R} + m\right)\left(1 + \frac{pR}{2S_1}\right)$$

The filling run will be most economical when the total cost per can will be minimum. By differential calculus, the minimum is obtained by equating the derivative of f with respect to R to zero or:

$$\frac{df}{dR} = 0$$

The derivative of f with respect to R is

$$\frac{df}{dR} = \frac{-L}{R^2}\left(1 + \frac{pR}{2S_1}\right) + \left(\frac{L}{R} + m\right)\frac{p}{2S_1}$$

Equating this derivative to zero we have

$$\frac{-L}{R^2}\left(1 + \frac{pR}{2S_1}\right) + \left(\frac{L}{R} + m\right)\frac{p}{2S_1} = 0 \qquad (2)$$

Solving equation (2) we get:

$$\frac{-L}{R^2} - \frac{LpR}{2R^2S_1} + \frac{Lp}{2RS_1} + \frac{mp}{2S_1} = 0$$

or

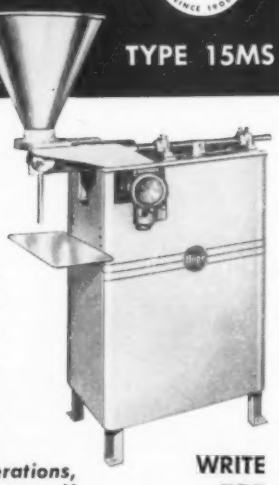
$$\frac{mp}{2S_1} = \frac{L}{R^2}$$

or

NEW...

Hope

FILLING MACHINE TYPE 15MS



... You can buy several for less than the cost of one big machine

Another first for Hope . . . This new, small, streamlined floor model accurately handles liquid, viscous and semi-solid products quickly and at the lowest possible cost! Excellent for pilot runs, small operations, laboratory testing, small batches and short production runs of a color or product.

WRITE FOR DETAILS

HOPE MACHINE COMPANY

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$$R' = \frac{2LS_i}{mp}$$

$$R = \sqrt{\frac{2LS_i}{mp}} \quad *$$

Since 2L are constant then

$$\frac{}{mp}$$

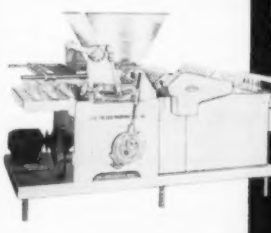
$$R = K\sqrt{S_i}$$

* This is known as Camp's Formula

The foregoing relationship is true when an excess of warehouse space is available. In practical operations, however, warehouse space is limited and several products are filled on the same machine. In this case the most economical run for each product would still be proportional to the yearly sales of that product. A new constant k, which is a function of the warehouse space available, may be derived as follows

Symbol	Description
k	Constant — Limited warehouse space
R_A	Most economical run of brand A
R_B	Most economical run of brand B
S	Total annual sales of all brands in cans per year
S_A	Annual sales of brand A in cans per year
S_B	Annual sales of brand B in cans per year
W	Maximum number of filled cans in warehouse
N	Number of runs per year

A run of Brand A should be:



GEYER ten line piston filler with separate motor driven agitator, rollover, cleaner and automatic feeding device

fill your products faster at LOWER operating cost with the GEYER TEN LINE FILLER

You can fill your semi-liquid and semi-solid products faster and more economically with the GEYER ten line filler. This sturdy unit offers operating economies no other filler can offer plus:

- filling speeds up to 200 containers per minute
- versatility of products handled including food, dairy, paint and chemical products
- simplicity of operation
- versatility of containers handled — from 2 oz. to gallon containers
- easy cleaning, fast change-over
- positive, accurate filling
- sanitary construction around the filling zone

Write, wire or call for more details on the GEYER ten line filler or our other fillers to meet the needs of the small and large packer.

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the original builder of Philadelphia piston fillers

BI-DI® or STRES-PRUF®

reinforced gummed tapes

Switch to either of these glass-reinforced gummed tapes and see how their quick grab steps up production in your shipping room. Both tapes carry an exclusive gumming formula developed in Mid-States' own laboratories.

You need no special additive to make these tapes stick. The gumming is amazingly water-soluble, reaches full tack almost instantly. It sticks permanently with a minimum of rubbing.

Both tapes are reinforced with strands of glass yarns running across and lengthwise. These reinforcing fibres won't wick moisture and the laminating materials make the tapes highly water-resistant. Bi-Di is asphaltically laminated. Stres-Pruf is non-asphaltic. Either one will cut sealing costs.

Write for sample rolls and complete data

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New York Syracuse Philadelphia Boston Atlanta
Cleveland Detroit St. Louis Los Angeles

Taking the guesswork out of it all

Mr. Irons' highly refined and thoroughly quantitative approach to the problem of packaging line speed determination emphasizes the trend that guesswork in packaging line calculation is becoming a thing of the past. However formidable his mathematics may appear at first glance, the fact remains that this represents an approach calculated to reduce all measurable terms to specific figures in order to give proper emphasis to their meaning and direction when working out the details of the packaging line speeds. Those not yet faced with union problems would do well to note their impact on this particular approach and to note further how Mr. Irons has discussed his subject in the light of realistic day-to-day working conditions.

$R_A = k \sqrt{S_A}$ cans

and a run of Brand B should be:

$R_B = k \sqrt{S_B}$ cans

Warehouse space for these cans is merely the sum of the most economical runs of all products; therefore

$W = k (\sqrt{S_A} + \sqrt{S_B} + - - - -)$

or

$$k = \frac{W}{(\sqrt{S_A} + \sqrt{S_B} + - - - - -)} \quad (3)$$

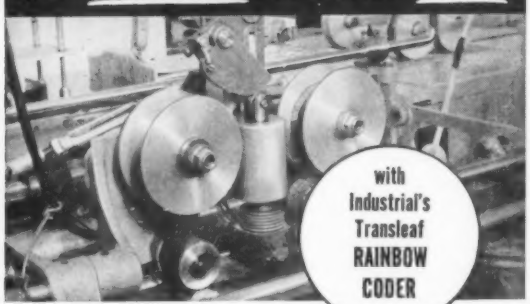
and the number of fillings in a year's time will be

$$N = \frac{S_A}{k\sqrt{S_A}} + \frac{S_B}{k\sqrt{S_B}} + - - - -$$

$$\text{or } N = \frac{1}{k} \left(\sqrt{S_A} + \sqrt{S_B} + - - - - \right)$$

Substituting the value for k from formula (3) we get

you SAVE MONEY . . . imprint BETTER



If you want better imprinting at lower cost for bigger profits, the Rainbow Coder is your answer!

Special head and pressure arrangement assure sharp, clear quality controlled impressions in a wide color range — on any material or surface that will accept hot roll leaf imprinting. 250 impressions cost about *one cent!*

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The *PAK-RAPID* intermittent motion principle gives you pouch type packages with *AUTOMATIC FEEDING, PRINTING, COUNTING & AIR REMOVAL.*

Ideal for packaging any product up to 1¼" thick in all flexible heat sealing materials except unsupported plastic films.

Portable — operates on 110 Volt A.C.

PAK-RAPID INC.

INCORPORATED 1945

Builders of fine packaging machines.

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PAK - RAPID INC.

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$$N = \frac{(\sqrt{S_A} + \sqrt{S_B} + - - - - - -)^2}{W}$$

Substituting this value for N in equation (1) we get

MINIMUM REQUIRED OPERATING SPEED = (cans per minute)

$$\frac{S}{114{,}000 - \frac{10}{W}\left(\sqrt{S_A} + \sqrt{S_B} + - - - - -\right)^2} \qquad (4)$$

The practical usage of this formula may be illustrated by the following example. Assume Plant D with a line efficiency of 90% and warehouse space for two weeks' supply has an annual sales volume of 30,000,000 cans per year comprising three major brands as follows:

Brand X = 15,000,000 cans per year
Brand Y = 8,000,000 cans per year
Brand Z = 7,000,000 cans per year

Substituting in the formula (4):

Minimum required filling speed =

$$\frac{30{,}000{,}000}{0.90(120{,}000) - \frac{10}{1{,}154{,}000}\left(\sqrt{15{,}000{,}000} + \sqrt{8{,}000{,}000} + \sqrt{7{,}000{,}000}\right)^2} =$$

$$\frac{30{,}000{,}000}{108{,}000 - 0.00000865\ (2870 + 2830 + 2650)^2} =$$

$$\frac{30{,}000{,}000}{108{,}000 - 0.00000865 \times 87{,}500{,}000} =$$

$$\frac{30{,}000{,}000}{108{,}000 - 757}$$

280 cans per minute*

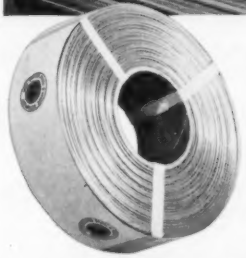
The minimum required filling speed of 280 cans per minute is a practical basic need and it would appear to be advisable, after weighing manpower and investment conditions, to obtain a filling line capable of better than 300 cans per minute.

Consideration of the investment factor may be considerably assisted by the use of a tabular comparison as illustrated on Page 52.

In the above mentioned tabulation the "crew size" is admittedly controversial and is shown merely as a guide. The item of "investment" represents the estimated installed cost of the various pieces of equipment comprising the filling line. If can seaming equipment is purchased rather than rented, it would also appear under "investment" and would be deleted from "fixed annual expense". "Total fixed annual expense" is merely the sum of the costs under "fixed annual expense" for 250 grade changes per year.

Since additional grade changes are in increments of 250, each succeeding item is obtained by adding the fixed annual expense for 250 grade changes. "Operating cost" represents the labor cost of the respective crews. "Break-even point" is calculated by taking the difference of "Total fixed annual expense" between any two types of installations for each number of grade changes and dividing by the difference in "operating costs" of the same two installations.

*All figures shown are slide rule calculations since these are sufficiently accurate for all practical purposes.



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Mid-States Stitching and Tying Machines—a complete line of cost-savers to serve every packaging requirement . . . Write for further details and prices.

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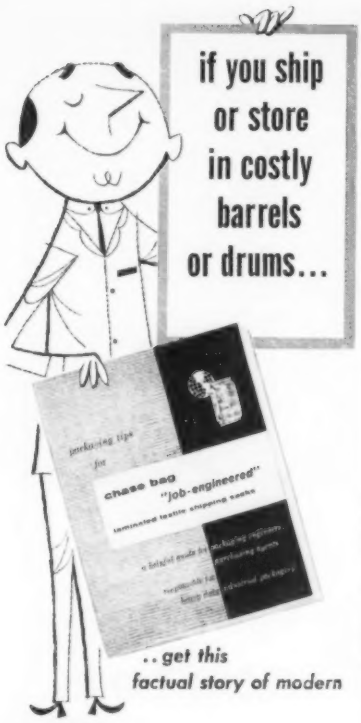

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If your products must be protected from moisture, dehydration, or contamination, why not switch to *bags*—you'll save money.

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Here is a preview of The Show: The following pages carry an alphabetical listing of exhibitors with their booth numbers and a brief description of the features of their exhibits. It deserves the careful scrutiny of those seeking to scan the entire show as well as to select the exhibitors whose offerings are of maximum help to their particular operations. Our center spread (on pink stock) carries a listing of hotels the exhibitors are using. It also carries the detailed program of the AMA conference.

AMA holds 26th annual National Packaging Exposition and Conference

American Management Association predicts that 30,000 executives and technical men from more than 9,000 companies will attend its 26th annual National Packaging Exposition at the International Amphitheatre, Chicago, April 8-11. More than 375 exhibitors are using 33,000 square feet of floor space in the South Hall and in the Exposition Hall of International Amphitheatre to show packages, materials, machinery and equipment, as well as services and accessories pertinent to packaging.

There is no registration fee for the 1957 show and attendance is open to anyone with a business affiliation. Hours of the show are as follows:

Monday, April 8 — 10 a.m. to 6 p.m.

Tuesday, April 9 — 10 a.m. to 9 p.m.

Wednesday, April 10 — 10 a.m. to 6 p.m.

Thursday, April 11 — 10 a.m. to 3 p.m.

Concurrently with the show, AMA is conducting its National Packaging Conference. Details of its sessions appear in the distinctively colored center spread section of this issue. Conference registration is open to non-members as well as to members of American Management Association. Registration fees for the full conference are $18.00 for AMA members and $24.00 for non-members. Registration for a single session is $7.00 for an AMA member or $10.00 for a non-member.

Badges of conference registrants will admit them to the exposition without reregistration, but badges for the exposition do not admit their holders to conference sessions. AMA urges advance conference registration in order to save waiting in line prior to the opening meeting. Registration cards are available from the Packaging Division, American Management Association, 1515 Broadway, Times Square, New York 36, New York.

Don't miss the center-spread on pink stock which gives the hotels where these exhibitors are headquartered and other helpful information.

Exhibitor: **Booth:**

A-B-C Packaging Machine Corp. 1162-64
Exhibiting its Model M Junior semi-automatic top and bottom case sealer and its Model XSA short automatic top and bottom case sealer. A-B-C says that its XSA can be furnished in 36 different models.

Abbott Plastic Machine Corp. 772
Exhibiting its skin-packaging and demonstrating its process, as well as the vacuum forming process.

Acme Steel Co. 1106
Exhibiting its new Model F1E semi-automatic strapping machine, demonstrating strapping on a special production line conveyor set-up. Also exhibiting and demonstrating other steel strapping machines and equipment, and wire stitching machines and accessories.

Ajusto Equipment Co. 635
Exhibiting its line of Ajustrite chairs and stools, consisting of 32 models and sizes. Ajusto says its exhibit will feature its sit-stand-lean platform stool and its swing bracket chair for attachment to conveyor lines or machinery.

Aluminum Foils, Inc. 1094
Exhibiting its materials in various forms.

Ambassador Plastics & Mfg. Corp. 1281
Exhibiting its molded foam styrene packaging applications, such as combination shippers and point-of-sale displays. Also exhibiting industrial positioning pads and military packaging applications of this material.

American Can Co. 1005
Exhibiting a wide variety of its products. Executives of its general sales department and its central division will be in attendance.

American Excelsior Corp. 722
Exhibiting its new Moldex, a prefabricated shock-absorbing cushioning material made to specification. Also exhibiting various applications of its Protex cushioning pads.

American Latex Fibre Corp. 1265
Exhibiting its Rubbair rubberized curled hair and Crintex rubberized curled fibres in both flat stock and diecut forms for the packaging of delicate and fragile items.

American Marking Corp. 1183
Exhibiting for the first time its Top-N-Bot-M coder, which code dates and price marks container top and bottom surfaces. Also exhibiting its Micro-Coders, Micro-Printers, and Vari-Printer equipment.

American Partition Co., Div. of Standard Brands, Inc. 735
Exhibiting its complete line of partitions (inner packing) in all sizes, quantities, and grades of board. Its Traver Partition Corp. Div. is exhibiting cookie and candy partitions.

American Type Founders Co., Inc. 1040-44
Exhibiting its roll-to-roll flexographic press and ATF gravure proof equipment.

American Viscose Corp., Film Div. 954
Exhibiting a variety of cellophane packages to demonstrate the versatility, printability, and forms possible with this material. Avisco plans to show some of the specialized testing and evaluation equipment.

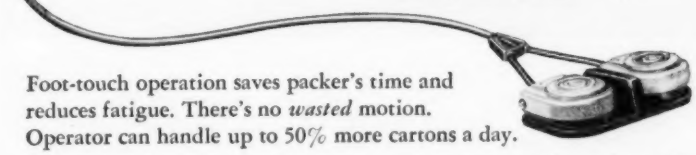
Amsco Packaging Machinery, Inc. 814, 822
Exhibiting its automatic jaw bag sealing machine that seals head labels, punches, code dates, and imprints automatically. Also exhibiting its rotary automatic sealer machines.

Anderson Bros. Mfg. Co. 653
Exhibiting its automatic nesting type cup dispensing, filling, and capping machine with Roto-Matic cup magazine and Bulk-O-Matic

YOU CAN CUT SHIPPING COSTS

and reduce pilferage loss

with the New
NATIONAL "88" ELECTRIC
DUAL LENGTH TAY-PER®



Foot-touch operation saves packer's time and reduces fatigue. There's no *wasted* motion. Operator can handle up to 50% more cartons a day.

Automatically delivers either one of TWO preset lengths — from 6" to 70" of tape accurately measured for length and width of carton. (Longer lengths if desired by keeping trip compressed). Saves in tape costs — less tape is used to securely seal shipping containers.

and itstix® PRINTED TAPE

When you seal with printed tape your customer knows immediately that the carton has been tampered with if the seal is broken. Itstix guards against pilferage and concealed losses, reduces claims for damages. And it's effective low-cost advertising, constantly promoting your business.

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Use the National "88" Electric Dual Length Tay-per ® in your shipping room for 10 days, without cost or obligation. See how its Dual Operating Trip and other time and tape-saving features cut shipping costs.

NASHUA

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Nashua Package Sealing Division
Dept. PE-4, 44 Franklin St., Nashua, N. H.

Please send me your new Printed Sealing Tape booklet, as well as information about Nashua tape moistening machines and your 10-day free service trial.

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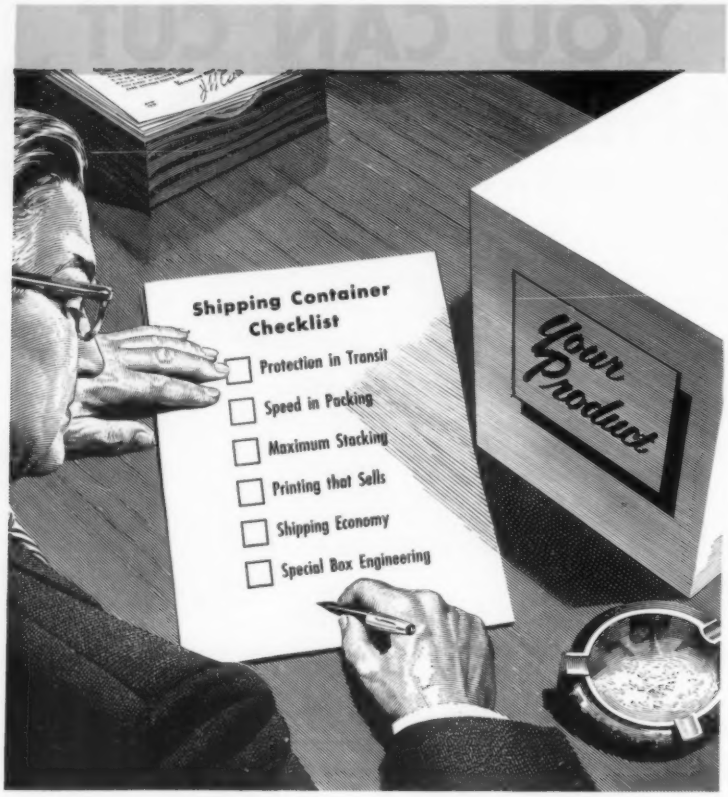

CHECK THE FACTORS MOST VITAL TO YOU

Whether you're President, Vice-President, Treasurer, Purchasing Agent, Sales Manager, Production Manager, Traffic Manager, Advertising Manager... the above factors in selecting the right shipping containers deserve your personal attention.

Call your nearby Gaylord packaging engineer for boxes made to your prescription.

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SOLID FIBRE BOXES • FOLDING CARTONS
KRAFT PAPER AND SPECIALTIES
KRAFT BAGS AND SACKS

GAYLORD CONTAINER CORPORATION ★ ST. LOUIS
DIVISION OF CROWN ZELLERBACH CORPORATION

Exhibitor: Booth

capper; rotary filler and capper for ¾ oz. and one oz. condiment cups, and other machines.

The Arabol Mfg. Co. 964
Exhibiting packages labeled or assembled with Arabol adhesives. Chemists and representatives with field experience in adhesive application for packaging will be in attendance.

Arenco Machine Co., Inc. 1234
Exhibiting for the first time its Arenco GAN twin tube filling machine. Also exhibiting various Arenco packaging machines and complete details on Schubert & Co.'s aluminum cap sealing equipment.

Armour & Co., Curled Hair Div. 1255
Exhibiting delicate instrument packaging with Hairflex and Armofoam cushioning materials. Samples will include Hairflex rubberized curled hair, sheet stock, die-cut sheet stock, molded rubberized curled hair and Armofoam flexible polyurethane foam.

Askania Regulator Co. 432
Exhibiting its self-container light duty edge guide Model 550, its general purpose heavy duty back stand, and its light duty unwind stand suited for use with edge position control units such as its models 10, 15, 25 and 550.

The Auto-Vac Co. 657-61
Exhibiting its Auto-Pak machine for Skin-pak, Snap-pak, and blister-pack, its Lab-Vac model sampling machine, and a new machine which represents advanced design, according to Auto-Vac.

Avery Adhesive Label Corp. 727-729
Exhibiting two new pressure sensitive label dispensers, its E6-6 automatic electric dispenser, and its H4-5 manual dispenser. Avery says both of these will handle either single or multiple-width rolls of pressure sensitive labels.

Bakelite Co., Div. of Union Carbide and Carbon Corp. 922
Exhibiting general uses of Bakelite plastic materials, including polyethylene, vinyl, styrenes, and phenolics, as used in the packaging field.

Bartelt Engineering Co. 983
Exhibiting for the first time a new automatic stand filler with auger type filler for powders, granulated solids, semi-liquids or liquids, incorporating a volumetric filler infeed and discharge conveyors. Also exhibiting other Bartelt automatic packaging machinery.

Basca Manufacturing Co., Div. of Huyler's 699
Exhibiting for the first time equipment for handling its Ribfoil cups and closures, its automatic dispensing, filling, and sealing equipment, its Fords Synchro-Print capping presses, and other equipment.

Bemis Bros. Bag Co. 1213-15
Exhibiting for the first time its Tape-Top bag closing machine, Bemis Packer-ette for filling and weighing 25 to 150 lb. bags. Also exhibiting its new siftproof Bemistape bag closure, and other bags.

Bensing Bros. & Deeney Sales Co. 805
Exhibiting its new flexographic printing inks, including Safe-T-Brite, high flash-point safety ink for polyethylene and other films, and Mul-T-Brite, high speed ink for polyethylene, all cellophanes, and other films and papers.

Better Packages, Inc. 511, 515
Exhibiting the Better Pac case sealer, as well as its new Tape-O-Matic electric tape dispenser, in addition to key items of its regular line of tape dispensers.

Big Joe Manufacturing Co. 233, 237
Exhibiting its manual lift truck, counterweight lifts (Telescopic), its new 1500# Challenger, and its battery operated lifts.

Biner-Ellison Machinery Co. 1167
Exhibiting its Labelmatic labeling machinery, operating from 20 to 60 bottles a minute and handling bottles of various sizes and shapes up to one gal. capacity.

E. L. Bivans, Inc. 1114
Exhibiting its Model 50 Tuck-O-Mat.

Exhibitor: **Booth:**

equipped with a Model 321 carton printer. Also exhibiting a Model 54 Convey-O-Mat carton set-up machine and a Model 518 carton closer.

Blocksom & Co. **1257**
Exhibiting samples of its sheet and molded rubberized hair as used in the packaging field.

Bostitch **1065**
Exhibiting some 20 types of its stapling machines for packaging and shipping operations, including its Bostitch 685 automatic container stitcher.

Bradley Container Corp. **935**
Exhibiting its squeeze-to-use polyethylene plastic tubes, bottles, and cans, including those used by drug, cosmetic, household and food products. Also providing details of its complete packaging services.

W. Braun Co. **505**
Exhibiting a new linerless cap, a safety cap for packages requiring protection from children, a line of polyethylene bottles designed for pharmaceutical use, a new nylon aerosol bottle, and other glass and plastic containers and closures.

Brown Bag Filling Machine Co., Inc. **1165**
Exhibiting its Vibracount to feed and count small items of hardware, its Formapak for hardware uses, and its Liquid Packeter, a machine to form and fill from two to eight packets per cycle.

The Brown-Bridge Mills, Inc. **1259**
Exhibiting its full line of BB Brand heat seal label papers in both the instantaneous and delayed action types, which are applied by hand or automatic machine devices. Also exhibiting other label papers and tapes.

B. H. Bunn Co. **517**
Exhibiting two models of its Bunn package tying machines, including 16" two wrap cross tie and 20" two wrap cross tie model with frame extension of 4".

The Burlap Council of the Indian Jute Mills Association, Inc. **675**
Exhibiting various types of jute fabrics for heavy duty packaging together with illustrations of special industrial packaging applications.

F. N. Burt Co., Inc. **762**
Exhibiting its folding cartons, set-up paper boxes, counter displays, transparent boxes, and round paper canisters.

Cameron Machine Co. **766**
Exhibiting its Model 550 slitting and roll winding machine for use in processing plastic films, foils, paper, laminates, and other packaging materials.

Carbert Manufacturing Co., Inc. **1295**
Exhibiting its Model TS-1AF-60 automatic polyethylene tube filling and sealing machine and its automatic polyethylene film bag sealing machine.

Carry-Pack Co. Ltd. **513**
Exhibiting its Carry-Pack handles and matching gummed tape, designed for application to boxes, bags, or packages.

Celanese Corp. of America **949**
Exhibiting new items such as extruded cellulose acetate film for fruit and produce prepackaging, extruded cellulose acetate sheeting for vacuum forming, and Fortiflex, a low pressure polyethylene, among other materials.

Celluplastic Corp. **739**
Exhibiting its line of cylindrical plastic packaging material of both rigid styrene and flexible acetate.

The Celon Co. **1134**
Exhibiting a range of consumer packages featuring various applications of Celons.

The Celotex Corp. **1144**
Exhibiting inner packs of fabricated Celotex, designed to block, brace, and position the item within a package.

Central States Paper & Bag Co., Inc. **771**
Exhibiting paper and plastic bags.

Ralph Chaffee & Co. **1249**
Exhibiting Chaffee Rotor-Sealers, heat seal-

Electronics Equipment

Pharmaceuticals

Powdered Metals

Confections

...protect your products with

HUMI-SORB

THE DESICCANT SPECIFIED FOR MILLIONS OF PACKAGES REQUIRING DEHYDRATION

HUMI-SORB is specified by more than 2000 firms whose products are susceptible to the ravages of moisture—corrosion, rust, mold, mildew and other forms of deterioration caused by high humidity.

Among these are:

• ELECTRONICS EQUIPMENT • ELECTRO-MECHANICAL EQUIPMENT • AIRCRAFT COMPONENTS • POWDERED METALS • GUIDED MISSILES • INSTRUMENTS • FOODS • PHARMACEUTICALS • FLOWER AND VEGETABLE SEEDS • HARD CANDY

HUMI-SORB meets Military Spec. MIL-D-3464B.

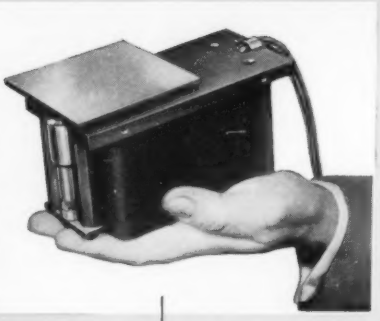
Humi-Sorb is available in all standard unit bag sizes, in bulk, or custom packaged to fit your specific needs.

- **Distributors in principal cities in U.S. and Canada.**
- **Shipping points:** Factories at Northbrook, Ill. (Chicago suburb), and San Bernardino, Calif. Warehouse stocks in many principal cities. Write us for your nearest source.

DESICCANT DIVISION Culligan INC.
Home Office: Northbrook, Illinois

New concepts in...

HIGH SPEED WEIGHING



CONTROLS
RECORDS • REJECTS

gross weighing
net weighing
check weighing
tare compensation

See this AVION weighing equipment at booths # 876 and # 763 National Packaging Exposition

AVION DIVISION | acf INDUSTRIES INCORPORATED
11 Park Place, Paramus, N. J.

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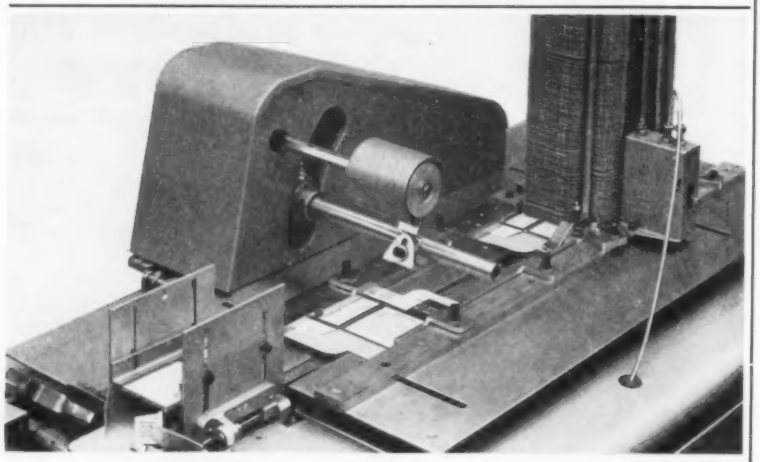


Printer-Coder

THE STANDARD OF QUALITY IN CARTON SET-UP

Print and Set-up in one operation. Another innovation from BIVANS, the quality name in cartoning equipment.

TUCK-O-MAT • CONVEY-O-MAT • PRINTER-CODER • CARTON CLOSER

BIVANS CORPORATION
2431 DALLAS STREET, LOS ANGELES 31, CALIFORNIA
Dist. By New Jersey Machine Corp., Hoboken, Cincinnati, Chicago, Los Angeles

Exhibitor: **Booth:**

ing machines, and a special machine with heat, pressure and dwell time indicated by dials. Also demonstrating code-dating and automatic labeling.

The Champion Paper and Fibre Co. **428**
Exhibiting its Kromekote cast coated folding board and its Kromekote cast coated box wrap and label papers, as well as Colorcast drum finished label, box wrap, and gift wrap, and Chamkote embossed box wrap.

Champlain Co., Inc. **1111**
Exhibiting wrappers, labels, specialty items and folding cartons produced on roll-fed rotary printing equipment and the inline type. Details of equipment and operation will be available.

Chase Equipment Corp. **512**
Exhibiting a fully automatic polyethylene tube and plug assembling machine and a fully automatic vial filling and stoppering machine, as well as a nasal plug inserting machine and other machinery.

Chicago Printed String Co. **1229**
Exhibiting for the first time a new tying machine to band hard rigid packages, boxes, or objects with the company's flat, non-woven cotton, and rayon tapes. Also exhibiting its Rip-Open tape.

Chippewa Paper Products Co., Inc. **859**
Exhibiting all types of corrugated specialties.

Chisholm-Ryder Co. of Pennsylvania **1260**
Exhibiting its CRCO New Way Model V-4 adjustable labeling machine.

The Clark-Aiken Co. **813**
Exhibiting its Type C 64" rotary cutter and Layboy unit, using the new Clark-Aiken slitters on the cutter. Also exhibiting a Clark-Aiken double unwind stand with collapsible frame, unwinding on Stub Arbors.

The Cleveland Container Co. **1113**
Exhibiting various methods of packaging, showing a complete line of spiral and convolute wound fiber containers with paper and metal ends, metal end telescope and screw cap containers, mailing tubes, paper tubes and heavy wall cores.

E. D. Coddington Manufacturing Co. **1217**
Exhibiting its Auger-matic valve bag packer.

Comet Industries **1198**
Exhibiting its latest method of protecting and packaging assembly kits, replacement parts, or loose components. Also exhibiting the Rol-Pak method of packaging in a continuous web or strip.

Conapac Corp. **1154-60**
Exhibiting the Walgan drum liner, a machine for manufacturing drum liners from flat or gusseted polyethylene tubing. Also showing for the first time Walgan's Polymaster, a combination polyethylene side weld pouch and bag machine.

Continental Can Co., Inc. **833-35, 839**
Exhibiting its metal cans, fibre drums, paper containers, bottle crowns, plastic containers, and flexible packaging materials.

Cotswold Fibres, Inc. **781**
Exhibiting polyethylene coated materials, government specification barrier materials, polyethylene coated paper, cloth, non-woven material, and burlap.

Crown Cork & Seal Co., Inc. **806**
Exhibiting its closures and containers.

Crown Zellerbach Corp. **921**
Exhibiting Tetra Pak containers, polyethylene papers, rolls of various paper, multiwall bags, crown de-aerator, printed bags. Also exhibiting Western-Waxide frozen food overwraps, bread wraps and bags.

Culligan, Inc., Desiccant Div. **1241**
Exhibiting Humi-Sorb desiccant or moisture adsorbent for dehydrated protective packaging. Also exhibiting Culligan humidity indicators and, for the first time, a new line of low cost humidity indicators.

The Daher Co., Inc. **1248**
Exhibiting lithographed and embossed metal containers in color imported from Europe in unusual shapes and designs. Suitable for packaging a wide variety of products.

For more information circle No. 241 on Reader Service Card

Exhibitor:	Booth:

Delaware Barrel & Drum Co., Inc. 328
Exhibiting molded polyethylene drums, tanks, and polyethylene coated steel drums.

Delaware Ribbon Manufacturers, Inc. 419
Exhibiting decorative satin and tinsel stripe ribbon, pre-tied ribbon bows, stretch-on ribbon box bands and box, and new Satin Curl ribbon.

Dennison Manufacturing Co. 1121
Exhibiting the new art of Therimagraphy, which gives the effects of printing on transparent film by means of labeling. In addition to equipment, various Dennison products also will be on exhibit.

Derby Sealers, Inc. 1143
Exhibiting its Grip-A-Tab "LE" series of pressure-sensitive roll label dispensers. Also exhibiting its regular line of gummed tape dispensers, pressure-sensitive tape dispensers, label and envelope moisteners, and bag sealers.

Dewey and Almy Chemical Co.
Div. W. R. Grace & Co. 770
Exhibiting container sealing compounds and the "Flowed-in" process for applying them to several typical closures.

Diagraph-Bradley Industries, Inc 1269
Exhibiting its line of shipping room equipment and supplies, featuring its new Rol-It-On system of stencil addressing.

Diamond Plastic Box of Illinois, Inc. 1062
Exhibiting plastic boxes in clear, two-tone, and opaque, with applications of uses to which plastic boxes are being put.

Dilts Div., Black-Clawson Co. 744
Exhibiting one of its newest two drum riding roll type slitter-rewinders, suitable for 52" trim width, rewinding rolls to 30" diameter. Also exhibiting a new design of unwind stand, with water-cooled air-operated brake.

Dispens-A-Label Devices 610
Exhibiting its hand type models for applying and moistening gummed labels, including two heat seal label activators, as well as its Model #60 Dispens-A-Label moistener.

The Dobeckmun Co. 1039
Exhibiting flexible packaging materials emphasizing new developments in laminated and extruded combinations, as well as Ultra-Kleer polyethylene, a new film.

Doughboy Industries, Inc. 1175
Exhibiting a completely redesigned power hand sealer and, for the first time, a new jaw-type automatic sealer-labeler for sealing and labeling filled bags. Also exhibiting its standard line of heat sealing machines.

The Dow Chemical Co. 1084, 1088
Exhibiting its Styron, Dow polystyrene plastic; Styrofoam, plastic foam; and Saran Wrap, with samples of packaged items employing the three products.

E. I. du Pont de Nemours & Co., Inc. 926, 936, 940
Exhibiting a selective group of packages illustrating the qualities of K type cellophane and Mylar polyester film for packaging. Also exhibiting new products and developments using Alathon polyethylene resin, Zytel resin,, and Teflon tetrafluoroethylene resin.

Eagle Chemical Co., Inc. 779
Exhibiting its Eagle desiccants, Eagle Super Gel, and Eagle Handidry.

Eastman Chemical Products, Inc. 976, 984
The Chemical Division is exhibiting a newly developed formulation of Epolene, Eastman polyethylene wax. The Plastics Division is exhibiting film sheet and containers of Tenite butyrate, Tenite acetate, and Tenite polyethylene.

Eastman Kodak Co. 975
Exhibiting transparent packages fabricated and vacuum formed from Kodapak I cellulose acetate, Kodapak IV cellulose triacetate, and extruded Kodapak II cellulose acetate butyrate.

Economic Machinery Co. 710
Exhibiting films upon the various types of

new! versatile!

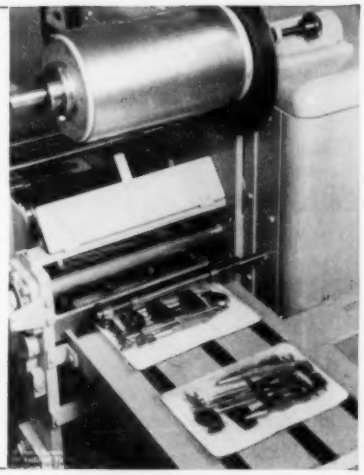
"FLEXOPAKER"

odd or symmetrically shaped items

...wrapped for impulse sales

FLEXOPAKER –

Quickly adjustable for an almost endless variety of sizes. Handles articles from 1½" x 1½" x 1/16" minimum to 27" x 15" x 2" maximum. Solves Food, Textile, Drug and Cosmetic, Paper, Candy, Baked Goods, Cracker and Biscuit or Industrial Product packaging problems.



capsule case history 1 - **AIRPLANE MODEL KIT**

Preformed, loose plastic airplane parts placed on flat bottom card are heat sealed in sturdy polyethelyne coated cellophane pouches. Parts not disturbed by stops or starts due to "*Continuous Flow*" design . . . "Flexopaker" production averages 3,000 packages per hour. Creates attractive visual pack yet holds loose contents in position. Tough poly-coated cellophane repels sharp edges . . . no cracking or shrinking.

capsule case history 2 - **SCREWS**

"Flexopaker" received previously counted quantities of screws, and formed pouches to contain them. Six individual packages were joined together with seals perforated for easy separation, and every sixth package cut off for shipping in units of six. A speed of 30 pouches per minute easily attained and maintained.

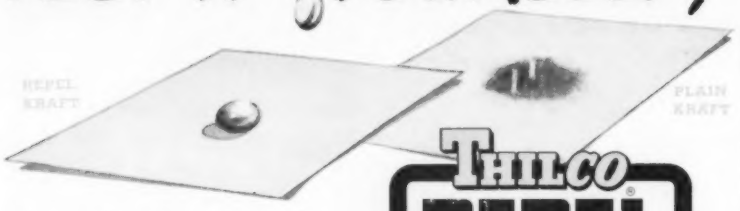
let us package your product. Send us samples of your products (or if they are perishable, describe the packages and sizes) and tell us the kind of overwrapping you require. We will either package and return them promptly with our recommendations, or give you our best suggestions in answer to your inquiry. If you have specific questions, we would welcome a letter from you.

Continuous Flow packaging

BATTLE CREEK
packaging machines, inc.
100 Twelfth Street, Battle Creek, Michigan

Here's oil and grease resistance you'd never believe... until you

TEST IT YOURSELF!



THILCO
REPEL

Thilco's new protective papers employing **SCOTCHGARD** BRAND Grease and Oil Repellent Size

3M COMPANY PRODUCT OF RESEARCH

USE THILCO REPEL PAPERS FOR:

- Heat bleed resistant barrier papers
- Non-staining ream wrappers
- Unit packaging of oily products
- Protective covers and shrouds
- Fibre drum and case liners
- Tape base stock
- And, many other protective wrapping applications

5 DIFFERENT GRADES

REPEL M. F. Kraft Papers — All 5 levels of treatment available on natural M.F. Kraft base papers ranging from 30# to 100# basis wt. (24x36-500).

REPEL Asphalt Laminated Papers — Prevent "bleeding" of asphalt laminant which otherwise occurs with oil or grease penetration on ordinary papers.

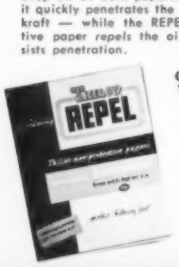
REPEL Wax Laminated Papers — Excellent moisture barriers that also resist oil and grease penetration — as well as resistance to stain or bleed from wax.

REPEL Polyethylene Laminated Papers — Excellent moisture-barrier papers with extremely high resistance to oil and grease penetration.

REPEL Polyethylene Coated Papers —Eliminates "wicking" of grease and oil along paper backing, thereby increasing grease resistance of regular poly-coated sheets from "fair and good" to "EXCELLENT!"

MAKE YOUR OWN COMPARATIVE TEST!

Send for this FREE demonstration and test kit. It contains samples of ordinary kraft paper, Thilco REPEL paper and capsules of oil. Drop oil on both papers. See how it quickly penetrates the untreated kraft — while the REPEL protective paper repels the oil and resists penetration.



GET THIS TEST KIT TODAY

STOPS oil and grease penetration up to 60 days

Here is another Thilco *first* . . . Thilco's high strength, long-fibred Krafts, specially treated by our own process with Minnesota Mining and Manufacturing Company's SCOTCHGARD grease and oil repellent size. In addition to imparting a high level of grease resistance, the Thilmany method used in the application of 3M's SCOTCHGARD also adds materially to the *wet strength* of the paper.

THILCO REPEL papers, as their name implies, *repel* and resist a wide variety of substances including mineral oils, fatty acids, motor oils, lard, shortening, fibrous greases and other damaging substances of similar nature . . . while still embodying the strength inherent in long-fibred Kraft papers. REPEL papers are available in a wide variety of combinations and 5 "levels" of treatments, each designed to meet a specific requirement.

Thilco "Imagineers" will welcome an opportunity to recommend the REPEL paper best suited to your particular needs.

THILCO

Functional Papers FOR PROTECTION THAT COUNTS!

NEW YORK • CHICAGO
CINCINNATI
DETROIT • MINNEAPOLIS

THILMANY PULP & PAPER COMPANY
KAUKAUNA • WISCONSIN

Exhibitor: **Booth:**

equipment manufactured, as well as representative samples labeled on Economic machinery by its customers.

Electronic Machine Parts, Inc. **733**
Exhibiting photo-electric registration control equipment, units covering application for intermittent or continuous rotary machines involving localization, spot cutting, or synchronization, as well as feed roll mechanisms.

Epsen Lithographing Co. **788**
Exhibiting full color can labels, overwraps, boxes, bottle labels, and other food packages and closures.

Eriez Manufacturing Co. **231**
Exhibiting its Hi-Vi electro-permanent magnetic vibratory feeders and unit vibrators, as well as several small feeders for feeding bulk material. A magnetic conveyor-elevator, the Magna Mover, Model 31SN6, will be in operation.

The Exact Weight Scale Co. **626-28**
Exhibiting its Selectrol automatic check-weighing machine, its automatic net weigher, and regular line of manual scales.

Felins Tying Machine Co. **1299**
Exhibiting its Model F-6-J Felins Pak Tyer for tying small bundles, boxes, and packages, and its Model FPB-16 Felins Pak Tyer for tying large bundles, packages, and boxes.

J. L. Ferguson Co. **711**
Exhibiting and illustrating its corrugated shipping container feeders-formers-positioners and loaders, bale sealers, case sealers, and case imprinters.

Fibre Drum Manufacturers Association **1146**
Exhibiting fibre drums for solids, semi-liquids, and liquids.

Fibreboard Paper Products Corp. **406**
Exhibiting all types of folding cartons, plain and printed; corrugated shipping containers, and specialty paperboard packaging.

Fife Manufacturing Co., Inc. **714**
Exhibiting its newly developed multiple power units of Fife automatic guiding equipment, including its MPA-2 power unit. Also exhibiting its MPA-6 multiple power unit.

The F. G. Findley Co. **990**
Exhibiting jointly with the Union Paste Co. the range of packaging for which these companies offer adhesives, including those for surfaces such as Mylar polyester film, vinyl, polyethylene, etc.

Dave Fischbein Co. **1231**
Exhibiting its portable bag closing machine and table model carriage conveyor.

Flexigrip, Inc. **418**
Exhibiting packaging applications of vinyl and polyethylene bags featuring Flexigrip's air and water-tight zippers.

Follansbee Steel Corp., Sheet Metal Specialty Div. **408**
Exhibiting its Follansbee reusable metal shipping containers.

Robert Gair Div., Continental Can Co., Inc. **854, 864**
Exhibiting a wide range of its folding cartons and corrugated boxes, including a research display featuring new products of research and development.

The Gardner Board and Carton Co. **883**
Exhibiting for the first time its Glaspak unit, a Gardner-developed machine for in-line packaging of glass containers for multi-unit merchandising.

Gaylord Container Corp., Div. Crown Zellerbach Corp. **921**
Exhibiting its corrugated and solid fibre shipping containers, including special boards and coatings, as well as folding cartons produced on four-color rotogravure press. Also exhibiting multi-unit and bulk containers and drumpaks.

General Box Co. **734**
Exhibiting wirebound crates and boxes for appliances and industrial products and corrugated containers for industry. Also exhibiting General Standard Pallet Boxes.

Exhibitor: **Booth:**

General Chemical Div., Allied Chemical & Dye Corp. **794**
Exhibiting informational material and details pertinent to the aerosol industry.

General Electric Co. **519**
Exhibiting for the first time its new one-way cut-off register control. Also exhibiting a side-register control, a line of controls for packaging operations, and an instrument display of the fixed-head detector and TSA-18 interval timer.

Gisholt Machine Co. **306**
Exhibiting its Sealamatic automatic neck band applying machine, a newly developed in-line bottle spotter unit, and details of its custom molded Fiberglas plastics department.

Glo-Brite Products, Inc. **737**
Exhibiting foamed polystyrene applications made from Koppers Dylite, expandable beads and Dow's Styrofoam — made into platforms for delicate parts and fragile items.

Globe Heat-Seal, Inc. **725**
Exhibiting its new Band-Seal-It for high production sealing of polyethylene, cellophane, Saran, or other flexible materials on the same machine. Also exhibiting its standard line of units, including those for automatic labeling and sealing.

The Goodyear Tire & Rubber Co. **971**
Exhibiting Goodyear's Pliofilm and Vitafilm, including laminations and packages of all types.

Adolph Gottscho, Inc. **1138-40**
Exhibiting its automatic production line machines for imprinting, coding, and marking, including its TB Markocoder portable conveyor-line unit. Also exhibiting an Imagraph unit for applying pre-printed designs by the Dennison Therimagraphy process.

Gray Company, Inc. **217**
Exhibiting its air-powered Powerflo pumps for handling inks and adhesives.

Graymills Corp. **745**
Exhibiting its HR6-3025 pump, a new addition to its line of agitator pumping systems for flexigraphic ink. Also exhibiting a new line of air-operated pumps.

Greenwood Packaging Supply Co. **640, 644**
Exhibiting its military packaging supplies, including metal containers, cushioning, molded foam rubber, rubberized fibre products, humidity indicators, and other materials. Jet-Pak, Inc. is exhibiting in this booth its cushioned and insulated bags, liquor and wine sleeves, and a new insulated bag for pizza pies.

The Greif Bros. Cooperage Corp. **1288, 1292**
Exhibiting its products, including fibre, steel, and plywood drums, wooden slack and tight barrels, and other cylindrical containers.

B. F. Gump Co. **713-15**
Exhibiting for the first time its new Bar-Nun twin beam weighers designed for high speed can filling lines. Also exhibiting its Bar-Nun automatic bag feeder, opener and weigher, its Edtbauer-Duplex net weigher, and Vibrox drum and barrel packer.

Hampton Manufacturing Co. **1243**
Exhibiting its pressure sensitive industrial tapes, both cloth and paper, as well as a wide range of other tapes including masking, flat back, paper packaging, and cloth tapes of various types.

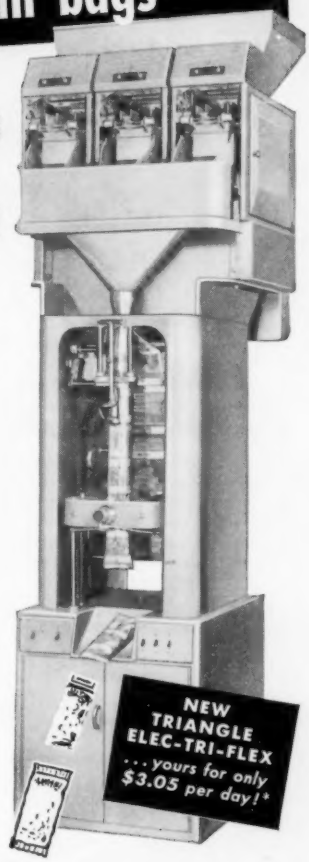
The Hankins Container Co. **843**
Exhibiting corrugated shipping cases in color and regular styles, as well as floor displays and backgrounds, and some single face specialties.

Hayssen Manufacturing Co. **1125**
Exhibiting for the first time a new machine to take a carton or tray blank, set it up, discharge it to an automatic net weight scale, fill it with pre-weighed product, then transfer it to the wrapping machine.

Hedwin Corp. **223**
Exhibiting its Cubitainers in qt., gal., and 5-gal. sizes, as well as polyethylene bottles, drum liners, and Rol-Tare bags. Also exhibiting Cubitainer filling and handling equipment.

This machine can save you $10,000 to $20,000 per year if you package in bags

Automatically makes, fills and seals 30 to 50 bags per minute—and cuts your labor costs up to 80%!



THE LOW price of the new Triangle Elec-Tri-Flex makes it a highly profitable investment for small plants as well as large ones. It costs but about ½ as much as previously available machines for the same purpose. It will package up to 24,000 bags per day, yet will pay for itself in one year on 3,000 bags per day.

It's a money saving, one-man packaging department. Every bag is perfectly formed from roll stock. Every bag is precision-filled by weight or volume as required. Every bag is tightly sealed and automatically discharged from the machine. Every printed bag is accurately registered by electric eye.

The Elec-Tri-Flex is extremely simple, yet has every control and adjustment required to meet your specific need.

Here is the means to slash the costs of your packages and your packaging operations—save on materials, labor and floor space.

Get all the facts and figures and you'll see the savings in it for you. Send the coupon today. There is no obligation.

VERSATILE

- Dry products of all kinds filled by weight or volume.
- 30 to 50 pillow style bags per minute—single or double wall—printed or plain—large or small.
- Wide range of products and package sizes can be handled on one machine—change over is simple and fast.

TRIANGLE PACKAGE MACHINERY CO.
6631 West Diversey Ave.
Chicago 35, Ill.

***MAIL THE COUPON** for literature and prices and free slide rule calculator showing low net cost per day to own the Elec-Tri-Flex.

TRIANGLE

CLIP TO YOUR LETTERHEAD AND MAIL TODAY!

TRIANGLE PACKAGE MACHINERY CO.
6431 W. Diversey Ave., Chicago 35, Ill.

Your Name_____

Products Packaged_____

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SENTINEL*
PACEMAKER

The Sentinel Pacemaker, made by pioneers in heat sealing, is a thermal impulse sealing method, designed and engineered to give you these advantages:

- Light Weight, compactness, low cost
- Requires no skill
- Insures a safe, FAST and positive seal with ease
- Precision automatic controls for correct pressure, heat dwell time and COOLING dwell time
- Seals varied thicknesses of Polyethelene, Saran, Pliofilm, MYLAR, Acetate and Vinyl, etc
- No fussy installation. Just plug in and start sealing
- Economical — draws current only during seconds when heating element is energized
- Simple, rugged, no service troubles
- Will soon pay for itself in faster production, improved seals

Sizes: 9, 13, 25 and 45 inches sealing area. Hand or foot operated.

For heavy-duty, large dimension jobs, the Sentinel High Speed Band Rotary Sealer — (Continuous Motion) and the Sentinel Jaw Type Sealer. Sentinel equipment meets U. S. Military Specifications.

Write for detailed literature

PACKAGING INDUSTRIES
151 Pine Street Montclair, N. J.

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Please rush me detailed literature on PE
☐ Pacemaker Sealer ☐ Jaw Type
☐ High Speed Band Rotary
Name_____
Company name_____
Address_____
City_____ State_____

Exhibitor:	Booth:
Heidelberg Western Sales Co. Exhibiting its cylinder and platen presses for packaging printing, embossing, and die cutting.	**1080**
H. H. Heinrich Co. Exhibiting illustrated material dealing with its line of high speed multicolor flexographic printing presses and its paper and cellophane bag making machines, multiwall tubers, and two-end bottomers for stepped-end valve bags.	**1157**
Fr. Hosser Maschinenfabrik Aktiengesellschaft (Packaging Equipment Service Ltd.) Exhibiting Hesser type PDVR IIIa machinery which makes, fills, and closes the tin-tie type of coffee package.	**994**
Hinde & Dauch Exhibiting corrugated shipping boxes, display shippers, Hevi-Duty boxes, display stands, and other boxes.	**1036**
Hobbs Manufacturing Co. Exhibiting details of its winding installations in the packaging field, including details of winding equipment, cutting machinery, shears and die presses.	**789**
Allen Hollander Co., Inc. Exhibiting gummed, ungummed, Able-Stik pressure-sensitive, greaseproof, head seal labels. Also exhibiting wrappers, bands, hang tags, point-of-sale labels, and automatic dispensers.	**630**
Hope Machine Co. Exhibiting its latest type 19A filling machine, as well as the single piston 15MS filling machine and the 19S piston filler.	**1211**
Hudson Sharp Machine Co. Exhibiting the new Campbell Poly-Wrapper, designed for automatic packaging with polyethylene, featuring controlled tube and cross-sealing to provide necessary dwell time.	**1034**
Ideal Stencil Machine Co. Exhibiting its stencil cutting machines, electric and hand-operated tape machines, fountain stencil brushes, felt tip markers, and other stenciling and shipping room supplies.	**514**
Imco Container Corp. Exhibiting its line of polyethylene bottles and jars in various sizes, colors, and shapes.	**1068**
Industrial Shredder and Cutter Co. Exhibiting its Silver 13C, Silver 16, and Silver Super shredding units.	**671**
Inland Container Corp. Exhibiting an educational display of the various operations involved in tree farming, pulpwood production, container board manufacture, and the production of corrugated boxes as an integrated operation.	**755-59**
Inland Wire Products Co. Exhibiting its fool-proof tying wire dispenser with its Model 0603 dispensing attachment, its Mighty Midget tying machine, its Model 1200 portable, semi-automatic tying machine, and other wire stitching wire products and tools.	**1271**
Intaglio Service Corp. Exhibiting a display of steps and methods in the gravure process of engraving cylinders and flat plates. Also included are multicolor printed samples on various materials.	**718**
The Inta-Roto Machine Co., Inc. Exhibiting its deluxe Lab-Master proofing press and the Kampf Rasanta slitter.	**329**
Interchemical Corporation, Printing Ink Div. Exhibiting some 2,000 packages of all types, including those with hard-to-print surfaces such as plastic films, foils, and coated stocks. These include odorless food wraps, steam sterilized boxes, rub-resistant cartons.	**1014**
International Marking Machine Co. Exhibiting its Model S3/2F press for printing round or irregular shapes in two colors, its Model RG, and its Model RS/3F three color letter press for printing flats in one operation.	**1287**
International Paper Co. Exhibiting corrugated fibre shipping contain-	**906**

MM

MARKED IMPROVEMENTS in
IDENTIFICATION AND DECORATION

A voice from the shelf . . . that says "Here's the paint . . . drug . . . oil . . . you're looking for . . ." would certainly help both buyer and seller. Attractively lithographed cans do "talk" this way, but one trouble has been high production runs of lithographed cans vs. the short run needs of variables such as color names, batch numbers and date codes. Markem suggested imprinting the variables on partially lithographed cans, as they are needed, and built the 70AF machine to do the job. Today a fair number are in use, imprinting little 1/32 to full gallon sizes, areas to 2" x 6", at rates up to 1500 an hour (an even faster rotary machine is underway). Beats torn, smudged or missing paper labels all hollow.

"Elephant trunk" marker . . . is not the usual way Markem describes its machines, but for the 89A, the nickname has stuck. This is a typical Markem "Special Products" development, for marking tradename and size on tubular rubber insulation. The inelegant nickname originated because the material is a six foot length of gray tube 1½" to 5" in diameter. It is fed into the machine, passes under the printing head and ejected by a lower drive roll. Adjustments for different diameters are easily made, and other useful features include mobility for use in different locations, variable speed motor, excellent imprint quality with Markem's jasmine yellow marking compound. The people who worked out this "Special" perhaps can help you, if you have a yet-unanswered problem in identification/decoration marking.

"Do-it yourself" . . . is often prompted by economy reasons. In marking products, however, the manufacturer who "does it himself" not only saves money, but also gets what he wants when he wants it. Here's what we mean: a company making plastic cases for eyeglass lens cleaner had the product name and directions imprinted on the containers by a job printer. The method was neither convenient or economical. The local Markem man presented a case for the 20A machine, and it gave a good account of itself in an 80-prints-per-minute run. Having another satisfied customer makes us happy, and he's tickled with the quality, convenience, and prospect of the 20A paying for itself in six months.

Is there a shape, surface or size giving you trouble in efficient marking? Try the Markem Method — a source of better marking for 46 years. Write Markem Machine Co., Keene 35, N.H.

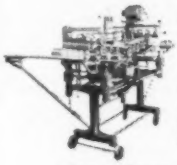
MARKEM

BETTER LABELING AND CASING

Series E Labelers

For glass and other cylindrical containers. Adjustable for all sizes from 112 to 403 dia. by 112 to 710 high and from 200 to 611 dia. by 200 to 708 high. Has sight-feed paste pot and hi-temp glue pot. Continuous label feed optional.

Series V Labelers

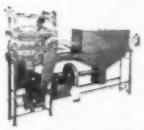


A lower priced labeling machine for moderate speed operations. Has all the versatility of Model E and is adjustable to a wide range. Can be supplied for regular wrap-around or spot labels.

Container Feed Tables

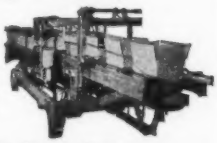
Eliminate excessive labor costs by automatically accumulating and placing containers in a single or double line.

Jar Cleaning Lines



To handle wide-mouth jars or cans, blowing out dust and loose matter by air, or to sterilize with steam. Can be had with water jets for rinsing.

Gluing - Sealing

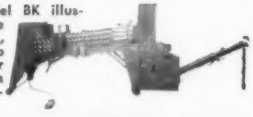


The newest ideas in economical gluing and sealing with enclosed glue lines that do not need constant cleaning.

Gravity Type Caser

An inexpensive but highly efficient roll-in type gravity Caser with right-hand, left-hand or two side delivery.

High Speed Casers



The new Model BK illustrated is the fastest Caser, delivering up to 24 cases per minute with double-discharge.

Tray Invertors

To dump horizontal retort crates and line up the containers in a single or double line for the next operation.

Send for Catalog PE-1589

Visit Our Booth 1260
At National Packaging Exposition

The Line IN LABELING AND PACKAGING Equipment

Chisholm-Ryder
COMPANY OF PENNSYLVANIA
HANOVER, PENNSYLVANIA

Circle No. 247 on Card

Exhibitor: Booth:

ers, multiwall shipping sacks, and packaging materials.

International Staple and Machine Co. 1153
Exhibiting its hand boxer, air boxer, clincher, and dual stapler machines for closing corrugated boxes.

The Ivers-Lee Co. 1221
Providing a meeting place for the discussion of the contract packaging service of unit packages.

Jiffy Manufacturing Co. 1135
Exhibiting Jiffy shipping bags, including those using multi-color papers and imprints and special construction liners. Also exhibiting Kushion Kraft waddings.

Jones & Laughlin Steel Corp., Container Div. 867
Exhibiting its line of steel drums and pails, emphasizing steel surface preparation, interior coatings and plastic liners.

The KVP Co. 1171
Exhibiting plain and printed vegetable parchment and waxed papers, including process reproduction displays on food packages for a variety of food products.

Kahlenberg-Globe Equipment Co. 303
Exhibiting its equipment for filling and sealing ampuls, vials, and small containers; conveyors and unscramblers to handle small, unstable containers. These include high speed automatic equipment and hand operated models.

Kartridg-Pak Machine Co. 642
Exhibiting its Chub packaging machine, demonstrating for the first time a new method of sealing polyethylene film continuously.

Kennedy Car Liner and Bag Co., Inc. 416
Exhibiting its Zip-Lip polyethylene package.

Keyes Fibre Co. 1189
Exhibiting molded pulp packaging materials, custom formed for interior packing.

Kidder Press Co., Inc. 1166
Maintaining a booth strictly for the purpose of talking with friends and customers.

The Karl Kiefer Machine Co. 1218
Exhibiting a Cadet model conveyor type vari-visco filling machine to demonstrate the metered principle of filling. Also exhibiting the principle of pressure-vacuum filling on a twelve stem rotary pressure-vacuum filling unit.

Kimberly-Clark Corp. 1105
Exhibiting its Kimpak interior packaging material, including laboratory demonstrations to show its operation and to emphasize its technical features.

Kimble Glass Co., Sub. Owens-Illinois Glass Co. 1006
Exhibiting its Snap-Cap Opticlear vials, a line of parental drug containers including Color-Break ampuls, syringe cartridges, Neutraglas bottles and vials, and private mold perfume bottles.

Kleen-Stik Products, Inc. 1254
Exhibiting pressure sensitive labels, both roll and individual types, as well as label dispensing machines. Also exhibiting a new machine for automatic application of Kleen-Stik pressure sensitive strips to point-of-purchase material.

Koppers Co., Inc. 963
Exhibiting flexible, rigid, and insulated packages, molded or extruded from Koppers plastics. Durethene Corp., a Koppers unit active in the manufacture of polyethylene film for packaging, participates in this exhibit.

Labelette Co. 1230
Exhibiting its Model-11A and 12A labelers for all round containers.

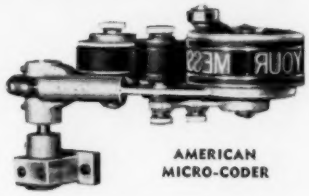
Lectromatic Devices, Inc. 609
Exhibiting its Model S-1000 combination sheeter and bag maker, including a variety of accessories, such as a static eliminator, electric eye, pre-determined counter, and others.

SAVE TIME — MONEY

IMPRINT

as you package . . .

AUTOMATICALLY



AMERICAN MICRO-CODER

The American Micro-Coder . . . a precision, friction-driven coding machine. Easily attached to *all* conveyers, carton sealers, packaging and process equipment. Speeds production—reduces costs on carton and box imprinting. Simple to operate and maintain. Exclusive American no-mix liquid ink makes quality impressions—dries instantly.

Write for descriptive brochure on the complete line of American Marking Equipment.

AMERICAN MARKING CORPORATION
77 LOCK STREET, NEWARK 1, NEW JERSEY
In Canada: Sterling Marking Products, Ltd.
London, Ontario, Canada

Circle No. 248 on Card

Styl-O-Matic ROTARY UNSCRAMBLING TABLE

• Cartons of bottles, jars, cans or containers are inverted on to the tilt top table and their contents pushed onto the revolving disc. Units are *automatically regimented and despatched in single file* to the conveyor.

LOWERS HANDLING COSTS
ACCELERATES PRODUCTION

• Conveyor carries units to other operations such as filling, capping, labelling, etc. Handles up to 100 units per minute depending upon diameter.

FREE!

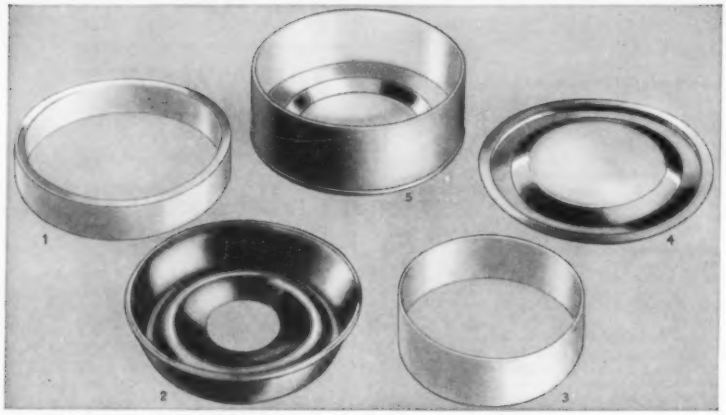
MAIL THIS COUPON FOR FULL DETAILS

ISLAND EQUIPMENT CORP. Dept. PE4
27-01 Bridge Plaza North
Long Island City 1, N. Y.

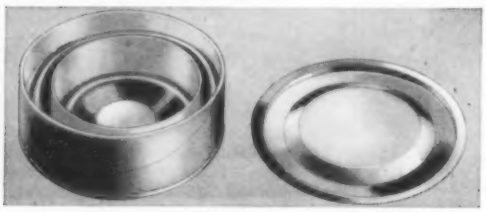
Please send particulars on the Styl-O-Matic Rotary Unscrambling Table.

COMPANY.....
BY.....
ADDRESS.....
CITY.....STATE.....

Circle No. 249 on Card



This efficient CLEVELAND CONTAINER package provides full protection and prevents distortion to a flexible rubber diaphragm used in hydraulic accumulators, made by Vickers, Inc.



A CLEVELAND CONTAINER IS A PLANNED CONTAINER!

Each part is designed for a specific purpose. The outer support ring (1) is placed in the metal bottom container (5) . . . the diaphragm (2) is placed with its outer edge resting on top of the ring . . . the inner support ring (3) is placed inside the diaphragm, ready for the cover (4) as illustrated above.

THIS PLANNING PAID OFF!

The completed package, at left, resulted in labor savings of 85% and in increased packaging production up to 400%.

It has all the characteristics of a planned container. Write or call our nearest plant for information.

Why pay more? For quality products . . . call CLEVELAND!

Visit our Exhibit #1113, Packaging Show, April 8 - 11
International Amphitheatre, Chicago

THE **CLEVELAND CONTAINER** COMPANY

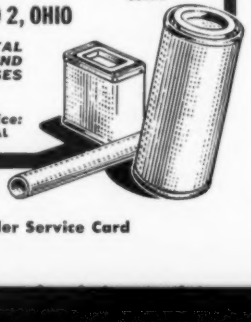
6201 BARBERTON AVE., CLEVELAND 2, OHIO

PLANTS AND SALES OFFICES: CLEVELAND, DETROIT, CHICAGO, MEMPHIS, LOS ANGELES, PLYMOUTH, WIS., JAMESBURG, N. J., OGDENSBURG, N.Y. • ABRASIVE DIVISION CLEVELAND

SALES OFFICES: NEW YORK CITY, WASHINGTON, D. C., ROCHESTER, N. Y., WEST HARTFORD, CONN.

• ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS • SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LTD.
Plants & Sales Offices: TORONTO AND PRESCOTT, ONT. Sales Office: MONTREAL



Exhibitor:	Booth:

Lemmon and Snoap — 795
Exhibiting its line of carbide tipped saws for cutting die stock, slotting and cutting corrugated board, as well as special saws and carbide tools.

MRM Co., Inc. — 1170-72
Exhibiting a new rotary labeling machine, as well as liquid filling machines for varying speed requirements.

Manhattan Paste & Glue Co., Inc. — 749
Exhibiting various types of adhesives, including those for adhering to difficult surfaces, as well as products glued with Manhattan adhesives.

Markem Machine Co. — 1250
Exhibiting its marking machines, Model 126 for printing die cut pressure sensitive labels, Model 90S screen process printer, and Model 45A for marking plastics, containers, and labels.

Marsh Stencil Machine Co. — 1226
Exhibiting its electric and hand operated stencil cutting machines and supplies, its electric Dial-Taper and Twin-Taper, as well as other markers and accessory items.

Massachusetts Plastics Corp. — 634
Exhibiting a new style half-gallon container with a polyethylene lid, as well as a new standard size open weave quart basket and other polyethylene covers and containers.

Mercury Heat Sealing Equipment Co. — 738
Exhibiting its VLS-12 label sealer for attaching saddle labels and its Verti Pak for forming, filling, and sealing bags either of polyethylene or cellophane.

Mid-States Gummed Paper Co. — 1205
Exhibiting its gummed tapes, label papers, and barrier wraps, as well as its skin pack board.

Miller Wrapping & Sealing Machine Co. — 814, 822
Exhibiting its new Corley-Miller Stor-Rap machine for wrapping meat, produce, and the like. Also exhibiting Corley-Miller Model MPS wrapping machine; Model KW Kwik-Wrap, Model BL sheeter-gluer, and hot plates and hand irons.

Milprint, Inc. — 884
Exhibiting all types of packaged products in a simulated self-service store atmosphere.

Minnesota Mining and Manufacturing Co. — 1025
Exhibiting working models of several automatic tape applicators, including a tape stapler, lid taper, and flat surface applicator, as well as its latest products including Scotchpak brand heat sealable polyester film.

Mojonnier Associates, Inc. — 876
Exhibiting a complete filling line filling two types of du Pont Zytel bottles. Also exhibiting its new rotary filler and featuring an automatic weight control and recording system.

The Monarch Marking System Co. — 669
Exhibiting its line of marking machines, tickets, tags, and labels for industrial and mill production or identification purposes.

Kenneth J. Moore & Co. — 1110
Exhibiting its Gluemaster gluing, labeling, coating, and packaging machinery, including its Round Can-tainer labeler with electronic label feed and an automatic tube labeler.

Mosstype Corp. — 1136
Exhibiting its D-Mount rubber plate cylinders for use on flexographic printing presses, as well as its rubber plate Mounter-Proofer machine.

Mystik Adhesive Products — 218
Exhibiting its new Kylon transparent tape, as well as opaque Kylon in colors, printable paper tape, and colored freezer and packaging tape. Also exhibiting other tapes, including a line of high-low temperature tapes.

Nashua Corp. — 1130
Providing a free package wrapping service, Nashua personnel will wrap show samples for visitors as they demonstrate Nashua's sealing tape and tape dispensing machines. Tapes used will include Nashua's new Itstix.

Exhibitor: **Booth:**

National Adhesives Div., National Starch Products Inc. **950**
Exhibiting its specialty (film) laminating adhesives, high speed resyns, and hot melt applications.

National Container Corp. **995**
Exhibiting a display dramatizing its timber reserves, plants, mills, other servicing units, and container production, emphasizing its methods and latest container designs.

National Metal Edge Box Co. **1035**
Exhibiting its Metal Edge Stayer illustrating the assembly of metal edge boxes in a user plant. Also exhibiting its other products, including the Metal Edge lines of standard material control specialties.

Nesbit Industries, Inc. **791**
Exhibiting its Styrofoam box, inserts, containers, and gift wrap materials.

New Era Manufacturing Co. **1188**
Exhibiting samples produced on the New Era press, such as labels, tags, specialties, tickets, and forms. Also exhibiting samples and pictures of booklets and tags strung or wired on its Graeber equipment.

New Jersey Machine Corp. **1114, 1118-22**
Exhibiting its semi-automatic and fully automatic bottle labeling machines in actual production operation.

Ogden Manufacturing Co. **769**
Exhibiting its line of electric heating elements for the packaging industry, including those used in rotary, conveyor, and hand sealers, as well as heaters for marking devices.

Olin Mathieson Chemical Corp., Film Div. **905**
Exhibiting its cellophane and polyethylene.

Olin Mathieson Chemical Corp., Forest Products Div. **905**
Exhibiting a display with a packaging theme.

Oliver Machinery Co. **853**
Exhibiting its 799 wrapping machine, 804 package or vial labeler, 806 label imprinter, and Cut-Stacker with Jumbo label size capacity. Also exhibiting roll-type thermoplastic labels.

Owens-Illinois Glass Co., Glass Container Div. **1006**
Exhibiting its new lighter weight glass jars, Vapak closures, price spot marking plastic closures, and shipping cartons.

Oxy-Dry Sprayer Corp. **1276**
Exhibiting its electronic neutralizer and its Oxy-Dry sprayer equipment for offset prevention.

Packaging Industries Ltd., Inc. **1002**
Demonstrating its Sentinel heat sealing machines featuring the new Sentinel Pacemaker thermal impulse heat sealer for sealing unsupported thermoplastic films. Also exhibiting its blister heat sealing equipment and other units.

Pack-Rite Machines, Div. of Techtmann Industries **1054**
Exhibiting its jaw heat sealers for cellophane, glassine and other materials; its rotary Plasti-Sealer, its rotary Speedsealer and its Holm automatic weighing and filling machine.

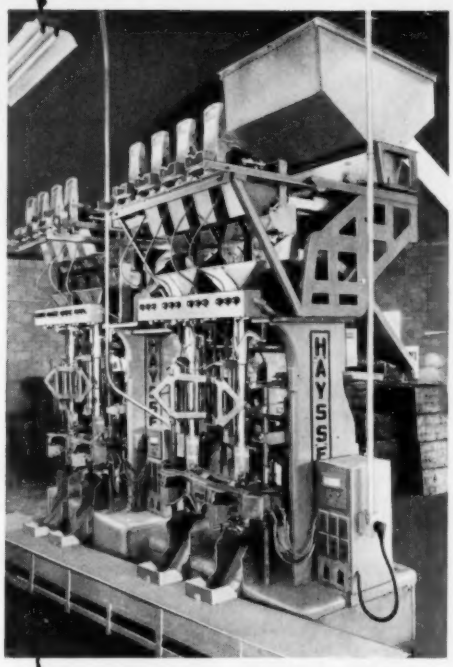
Paisley Products, Inc. **1139**
Exhibiting typical gluing applications in mural form with samples of adhesives and applications on packages. Also exhibiting new adhesive developments and technical service material.

Pak-Rapid, Inc. **641**
Exhibiting a Pak-Rapid machine with tray conveyor feed, printing unit, electronic temperature control, and a means of delivering packages at table height. Temperature control and package delivery are new features, Pak-Rapid says.

Perry Industries, Inc. **679**
Exhibiting its Accofil powder filling machine, its Peristopper, its unscramblers and accumulators.

COMPAK

high-production "Poly" Packaging continues to set new records for performance and economy!



Gressinger & Sons have produced over 25,000,000 perfect Polyethylene packages of radishes in one year's time on these two Hayssen COMPAK machines.

● No other packaging machine on the market can boast this record of production and dependability with polyethylene.

Whatever your product; solid, liquid or powder, we can produce a better package at less cost.

The simplified machine principle of COMPAK has made it first choice in every industry where perfect design register, accuracy and a true hermetically sealed package is necessary.

Let our experienced packaging engineers help you with your polyethylene packaging problems. Contact us TODAY and see how easily COMPAK fits into your operation.

HAYSSEN

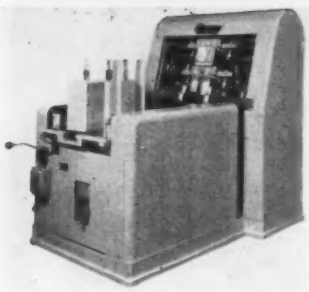
MANUFACTURING COMPANY • Dept. PE-4 • SHEBOYGAN, WIS.

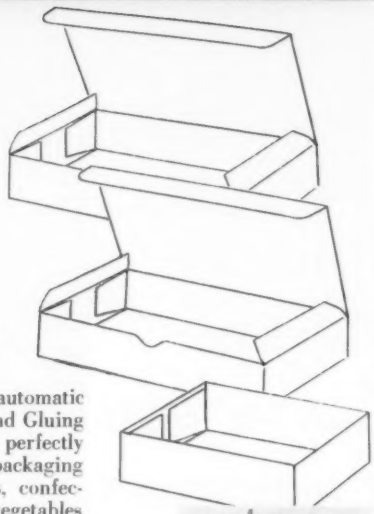
first in Automatic Packaging Since 1910

Albany • Atlanta • Chicago • Dallas • Denver • Detroit • Houston • Jackson, Miss.
Los Angeles • Minneapolis • New York • Philadelphia • St. Louis • San Francisco • Montreal • Toronto

For more information circle No. 251 on Reader Service Card

SEE THEM IN ACTION!





Forms and Glues Up To 175 Cartons Per Minute

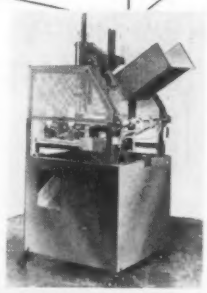
At cost-cutting high speeds, the fully-automatic Model SG Carton and Tray Forming and Gluing Machine converts low cost blanks into perfectly shaped glued cartons and trays for packaging many products . . . cookies, crackers, confections, frozen foods, cigarettes, fruits, vegetables and others.

Introducing

the New Model P-O

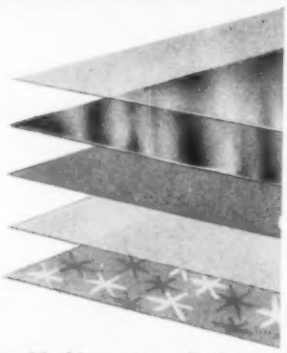
Carton and Tray Forming and Gluing Machine

Peters newest machine . . . designed to form and glue cartons and trays from low cost blanks — at speeds up to 40 per minute.



Peters Machinery Co., *Booth 1126*

National Packaging Exposition • April 8-11 • Chicago



Cuts and Stacks Cellophane, Foil, Kraft, Waxed, Gift Wrap papers, etc., at High Speeds

Peters Model UD Cellophane Sheeting and Stacking Machine automatically cuts up to 5760 full width sheets per hour from rolls and stacks sheets for easy pick up. Sheet size range — 4″ x 4″ up to 28″ x 28″, square or rectangular.

Peters MACHINERY COMPANY

4702 Ravenswood Avenue, Chicago 40, Illinois

Phone: LOngbeach 1-9000

Exhibitor:	Booth:

Peters Machinery Co. 1126
Exhibiting its Model SG carton and tray forming and gluing machine, its Peters-Ohio carton and tray forming and gluing machine, and its Model UD cellophane sheeting and stacking machine, and cartons handled on Peters machinery.

Pierce Wrapping Machine Co. 694
Exhibiting two spiral wrapping machines, one a straight length machine for wrapping hose, pipe, lumber, etc., and the other an annular wrapper for items such as tires, coils of hose, etc.

Pitney-Bowes, Inc. 629-33
Exhibiting its Model 4800 package imprinting machine, which includes three versions of its Tickometer high-speed counting and imprinting machine. Also exhibiting its Model 3700 parcel post scale, Model 4100 electric-powered mailing machine, and other units.

Plastic Container Corp. 783-85
Exhibiting polystyrene and polyethylene plastic stock containers in various colors and sizes for a range of food products.

Plastic Jewel Co., Inc. 646
Exhibiting its line of plastic re-use containers.

Plastic Packaging Corp. 1245
Exhibiting a new swirl pint size container and a new serv-a-tray, as well as other type of containers.

Plax Corp. 953
Exhibiting lined polyethylene containers, new thinwalled plastic carriers, new large ware, and various applications of the new biaxially oriented polystyrene film and sheet.

Pneumatic Scale Corp., Ltd. 1149
Exhibiting a four head Pneumatron weigher and a Vacuflow Jr. powder filler, as well as a display of packages and bottles to illustrate machinery operations.

Pontiac Engraving & Electrotype Co. 1279
Exhibiting its Electroplastic duplicate printing plates; its Accuratypes all-copper duplicates for making molding patterns, and other products and materials including original patterns in copper, zinc, and magnesium for rubber plate molding.

Popper & Sons, Inc. 1235-39
Exhibiting its automatic sterile ampul filling and sealing machines, automatic vial and bottle filling and stoppering equipment, high speed tablet and capsule counting and bottling machinery, and other units.

Potdevin Machine Co. 1133
Exhibiting its coating, gluing, and labeling machines, including a slip tube labeler for applying slip labels to collapsible tubes, and a Model 2R sheet coating machine, as well as a 6″ label activator for thermoplastic labels.

The Printing Machinery Co. 743
Exhibiting its Sterling toggle hook and base system in magnesium and semi-steel for mounting and registering flat-bed letterpress printing plates. Also exhibiting the PMC Warnock rotary hook system and other equipment and accessories.

Pyroxylin Products, Inc. 663
Exhibiting its Proxsealer blister packaging machine in operation, as well as literature and information on lacquer and hot melt adhesives, coatings, and heat sealing adhesives for skin and blister packaging.

Rapid Ribbon Corp. 1258
Exhibiting a display of recent samples of products utilizing Rapid Ribbon.

Reliance Electric and Engineering Co. 1194
Exhibiting its new V•S Jr. variable-speed electronic drive, a-c. brakemotor, a-c. gearmotor, and the Reeves Flexi-Speed Motodrive, Motor Pulley, and Motor Pulley Jr.

Reynolds Metals Co. 925
Exhibiting samples of aluminum foil packages, Reynolds new Reycon container closing and handling equipment.

Rheem Manufacturing Co. 423

Exhibitor:	Booth:

J. A. Richards Co. 617
Exhibiting its steel rule die making equipment, electromatic die saws, multiform benders, cutters, and bridgers, including its new equipment for large container plants.

Riegel Paper Corp. 332, 433
Exhibiting its line of packaging papers, including many new packages using Riegel papers.

Rosenthal Manufacturing Co. 229
Exhibiting its Wrap-O-Matic unit for feeding and cutting predetermined lengths of paper, film, foil, and single-faced corrugated.

St. Regis Paper Co.
1075, 1083, 1089, 1095
Exhibiting the products of the various parts of its organization, including those of Rhinelander Paper Co., St. Regis Container Corp., Chester Packaging Products Corp., Albany Corrugated Container Corp., and others. Exhibits include a 1000-lb. bulk-pak, a four color preprinted box, a metal edging machine, and various other packaging materials and units of equipment.

G. T. Schjeldahl Co. 219
Exhibiting its Model 40-40 side-weld polyethylene bag machine with split roll attachment. Also exhibiting a flying knife attachment.

Schroeder Machines Corp. 1053
Exhibiting its Cascaler short case sealer and its Quadnumatic, which opens, forms, fills, glues, and seals corrugated boxes.

Seal-O-Matic Dispenser Corp. 1267
Exhibiting its gummed tape sealing machines, cellophane and pressure sensitive tape dispensers, label and envelope moistenera, safety knives, carton openers, and steel tape rules.

The Seamless Rubber Co., F.O.S. Industrial Tape Div. 765
Exhibiting its pressure sensitive industrial tapes for packaging, holding, binding, strapping, waterproofing, and reinforcing.

Shear-Prinz Associates 767
Exhibiting its ready-tied bows and package decorations, including its stick-on and slip-on methods of applying these to packages.

Shopsin Paper Co. 632
Exhibiting colored foils, foil carton board, foil label stocks gummed and ungummed, foil tags and cover stocks, and a variety of other products incorporating foil.

Signode Steel Strapping Co. 324
Exhibiting its power strapping equipment, the Signode Addison-Semmes expendable pallets, and the Signode Adjusta-Pak.

The Simco Co. 1185
Exhibiting static eliminators of various types for converting and packaging machinery. Showing for the first time a new encased static bar.

Simplex Packaging Machinery Inc. Div. Food Machinery & Chemical Corp. 814, 822
Exhibiting its Model 24-7S side weld poly bag making machine and its Model 300 cellophane bag machine.

Sinclair and Valentine Co. 825
Exhibiting a special display of its products and its printing materials.

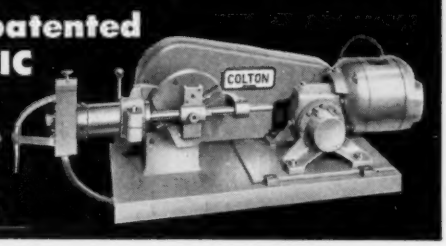
H. P. Smith Paper Co. 618
Exhibiting its waxed, oiled, laminated, and polyethylene coated papers for functional uses.

Soabar Co. 1263
Exhibiting its Model 22 Self-Stop label marker, its Model 10 Thermaply labeling machine, and its Model 20 Self-Stop label marker, for smaller gummed and pressure sensitive labels.

Southern Special Products Corp. 1035
Exhibiting colored, printed and designed linerboard, greaseproof, glassine and lardpak liner, and a variety of other laminated and treated boards.

Speedry Products, Inc. 1244
Exhibiting its Capac brush pens, Stencileer units, the Speedry Magic Marker, a model 64/53 Cartoneer and a Block Out Ink unit, all designed for marking packages.

"LITTLE GIANT" LIQUID FILLER
with COLTON patented EXACTO-METRIC VALVE saves its cost in speed and accuracy



1. **EXACT** metering on every fill — less than 1% variation — quickly saves cost of machine.
2. **LOW FIRST COST**—good buy for lower production needs.
3. **HIGH SPEED OPERATION**—zips out sample batches—fast.
4. **HIGHER PRODUCTION** by adding rotary index table for automatic filling with conveyor belt.
5. **FILLS: SINGLE NOZZLE**—up to 8 oz.; **TWIN NOZZLE**—up to 8 oz. per nozzle or 16 oz. total; glass or plastic bottles, cans, jars.
6. **FINGER TIP ADJUSTMENT** of fill.
7. **COMPACT** 33" D x 15" W x 12½" H. Bench mounted or fits on barrel or container for quick filling.

"Little Giant" is the *first* low-cost stainless steel unit to successfully combine compactness, simplicity, high-speed filling and extreme, money-saving accuracy. Nothing on the market compares with it. Single—No. 117; Twin—No. 119.

ARTHUR **COLTON** COMPANY
DIV. SNYDER TOOL & ENGINEERING COMPANY

Phone your inquiries collect to
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DETROIT 7, MICHIGAN

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Stuck with a sticking problem?
use...
SLIPICONE
heat-stable silicone release agent

Speeds packaging and labeling—keeps films, waxes, adhesives and other packaging materials from sticking to heat-sealing equipment.

Reduces maintenance and cleaning costs — keeps equipment clean and sanitary . . . prevents pile-up, browning and ink-smear.

Available in Compound or Spray—for quick, efficient application to all types of packaging and labeling equipment. *Compound*—2 and 8 oz. tubes; 10 lb. cans. *Spray*—12 oz. aerosol bombs.

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32 oz. Bottle

Safe* for Acids Alkalies Alcohols Strong Chemicals

Imco quart-size plastic bottles meet ICC regulations for complete safety in handling and shipping. Non-breakable and leakproof, these lightweight bottles are chemically inert to most all acids, alkalies, and alcohols.* Contact us for complete information on plastic bottles and jars to meet your container needs.

*Hydro-chloric acid, Sulphuric acid, Nitric acid, Acetic acid, Sodium Hydroxide, Ammonium Hydroxide, Strong Alcohols, etc.

IMCO CONTAINER CORPORATION

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POSITIONS WITH
NUCLEAR WEAPONS
RESEARCH & DEVELOPMENT
LABORATORY

PACKAGING ENGINEERS

Must be familiar with military and industrial packaging. Will assist other engineers in research and testing of various characteristics of packaging materials. Will design containers and shock-mitigation systems for protection of fragile components during transit and storage. Should have BS degree in mechanical, chemical, or industrial engineering. Salary will be commensurate with background and experience.

Sandia Corporation, engaged in nuclear weapons research and development for the AEC, is located in Albuquerque, N.M. — famous for its splendid climate and its cultural and recreational attractions. Benefits include extremely liberal paid vacations; 8 paid holidays per year; retirement, hospital, and insurance plans. Paid relocation allowance.

Send resumé to
Staff Employment
Section 595

SANDIA CORPORATION
ALBUQUERQUE, N. M.

Exhibitor: **Booth:**

Spencer Chemical Co. **895**
Exhibiting a wide range of packaging samples made from Poly-Eth polyethylene film grade resins. Also demonstrating the boilability of Spencer's Poly-Eth Hi-D development.

Standard Knapp Div. of Emhart Manufacturing Co. **850**
Featuring a booth with a number of its representatives on hand to discuss customer requirements with visitors.

Stanford Engineering Co. **1076**
Exhibiting its web guides, constant tension unwind and rewind stands, and a new type high speed slitter, designed for cellophane and film converters.

Sterling Seal Co. **1195**
Exhibiting metal protective domes for aerosol containers, as well as compo lined component parts for aerosol valves. Also exhibiting its metal containers, closures, and stampings.

Stokes and Smith Co., Subsidiary Food Machinery & Chemical Corp. **814, 821, 822**
Exhibiting its Model EH Neverstop high speed carton filler and sealer, Model EG Universal auger filler, and Model BS Stokes-wrap automatic flexible packaging machine.

Stone Container Corp. **730**
Exhibiting its high density containers, its Stone Sure-grip friction coating, its Sta-temp containers laminated with Alcoa foil, and various other displays, boards, and coating and printing applications.

Swift & Co., Adhesive Products Dept. **849**
Exhibiting samples with data available on new adhesives developed during 1956, including a new line of resin and rubber adhesives in solvent.

Technical Tape Corp. **224**
Exhibiting its pressure sensitive tapes and the polyethylene sheeting and tubing of W. Ralston & Co.

Tee-Pak Inc. **889**
Exhibiting cellulose and plastic packaging films, including Tee-Pak's new Snug-Pak shrinkable film. Introducing banding of multiple items with shrinkable cellulose. Also exhibiting full line of Unilox materials.

Toledo Scale Co. **879**
Exhibiting its new high speed classifier which checks package weights against predetermined standards. Also exhibiting new weight data systems and new tan type triple ratio counting scale for faster counts of small parts.

Tompkins' Label Service **1117**
Exhibiting sample packages utilizing its label service, including those labeled by high speed automatic equipment using various types of labels.

Triangle Package Machinery Co. **1180**
Exhibiting its Model A3-L1 automatic bag making, filling, and sealing machine, its Triangle-Bagby Model DS-1 single line automatic cottage cheese filling machine, and its Model A1C Elec-Tri-Pak net weigher with rear feed elevator.

Tri-Wall Containers, Inc. **672**
Exhibiting containers made of triple-wall corrugated board, representing the packaging of various industries.

Union Paste Co. **990**
Exhibiting jointly with F. G. Findley Co. the range of packaging for which these companies offer adhesives, including those for surfaces such as Mylar polyester film, vinyl, polyethylene, etc.

Union Steel Products Co. **871**
Exhibiting its Palletainer wire mesh container for shipping, storage, and in process handling. Also exhibiting wire mesh pallets, wire belting conveyor, and Meatainer slatted steel container.

United Shoe Machinery Corp. **412-14**
Exhibiting its rope-like Thermogrip adhesive and its Model A Thermogrip applicator. Also demonstrating tube making with a con-

Exhibitor: **Booth:**

tinuous adhesive line and the processing of polyethylene coated materials.

U. S. Bottlers Machinery Co. **1163**
Exhibiting its new high speed Model DS-12 Sanitair air cleaner. Also exhibiting new features of its Model B-49 straightline semi-automatic vacuum filler, and Model E-Z two-tube air cleaner.

U. S. Engineering Co. **1222**
Exhibiting for the first time its Multi-track Feed-A-Matic, as well as various models of small Parts-Feeders and Counters, variations of its Feed-A-Matic and its Pin Hopper, the latter being shown for the first time.

U. S. Industrial Chemicals Co. **533**
Exhibiting its Petrothene polyethylene resins for film extrusion, injection molding and paper coating.

The U. S. Metered Container Corp. **1240**
Exhibiting its metered container in action, as well as special display containers to demonstrate the metering action.

The U. S. Printing & Lithograph Co. **232, 333**
Exhibiting its multicolor packaging and display material produced by letterpress, offset lithography and gravure, including folding cartons, paper and foil labels, box wraps, multi-unit carriers, and other materials.

United States Steel Products Div., United States Steel Corp. **215**
Exhibiting its metal drums and pails.

The Varigraph Co. **614**
Exhibiting its Varigraph precision lettering instrument permitting more than 600 variations in size and shape of letters from one templet.

B. Verner & Co., Inc. **429**
Exhibiting its imprinting machine designed to automatically feed and handle numbering, coding, dating, and imprinting of cartons, bags, and other containers.

Vertrod Corp. **619**
Exhibiting thermal impulse heat sealing of all thermoplastic films. Exhibiting for the first time its fully automatic electro-magnetic impulse sealer with recycler.

Visking Co., Div. Union Carbide and Carbon Corp. **939**
Exhibiting its Visqueen film for flexible packaging.

Waldorf Paper Products Co. **1071**
Exhibiting samples of its multicolor offset and letterpress folding cartons, unitizing packaging featuring canband, and point-of-sale displays.

Walton Laboratories, Inc. **776**
Exhibiting its motor-driven mechanical water atomizers, including several types of Web Wetter atomizers used to introduce moisture directly to a moving web of paper or cellophane.

S. D. Warren Co. **319**
Exhibiting 1956 cartons using Warren's LusterBoard showing the use of this high-finish board for folding cartons serving various types of industries.

Washington Steel Products, Inc. **636-38**
Exhibiting its plastic vacuum-forming machine and companion trimming press. Also exhibiting the use of loading jigs for rapid production, as well as packages and other products made on the machinery.

Weber Marking Systems, Div. Weber Addressing Machine Co., Inc. **1233**
Exhibiting for the first time its new Dual-80 labeling printing machine for printing product and content identification labels. Also exhibiting its complete line of hand printers and stenciling systems for addressing and marking.

Weigh Right Automatic Scale Co. **1289-91**
Exhibiting its Model A-1 Pak King automatic for spices, pharmaceuticals, drugs, and food, its Model A Pak King semi-automatic filler for powders, and its Model B-PFK net weigher and its new Model S coupon insertor for coffee cans.

Hundreds of machines available that were designed for special industry applications.

Let us know your problem. We'll be happy to submit recommendation.

If your problem is high speed coating of paint, varnish, glue, latex, etc. — POTDEVIN's sixty years of specialization in coating equipment can quickly help you solve it . . . guaranteeing initial low cost and top efficiency. Illustrated is just one of hundreds of special machines. It laminates rolls of materials up to 20" wide at speeds up to 50 feet per minute.

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221 North Street • Teterboro, N. J.
Designers and manufacturers of equipment for Bag Making, Printing, Coating, Laminating, Gluing and Labeling.

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NEW MODEL WITH INSTANT PACKAGE SIZE ADJUSTABILITY
from 3"x4" to 5½"x12"

WRAP-ADE
UNIT PACKAGER WITH CONVEYOR FEED

INTRODUCING THIS NEW MODEL AT THE NATIONAL PACKAGING EXPOSITION. Be sure to see it at

Booth 775

This manually fed conveyor is the ideal feeding system for packaging small textile products, flat food items, toys, bandages, or any other reasonably flat small product.

OTHER MODELS AVAILABLE FOR LIQUID, TABLETS POWDERS, etc.

Wrap-Ade Unit Packagers perform an entire cycle of packaging operations including feeding, filling, forming and sealing practically every type of heat sealing materials. Photo Electric registration available.

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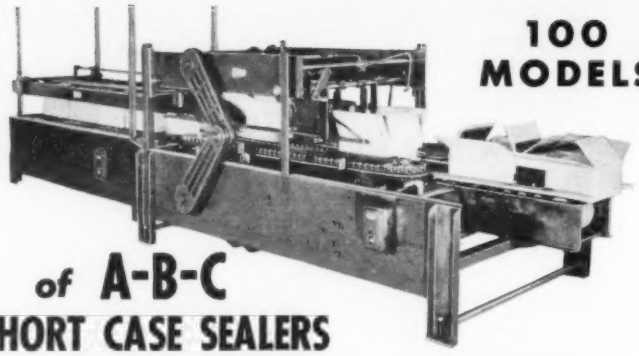

100 MODELS

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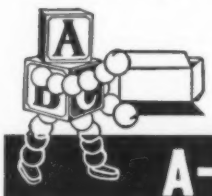
SHORT CASE SEALERS

Save two-thirds of your valuable floor space with the A-B-C Short Case Sealer—with increased packaging efficiency, more speed, less expense . . . Automatically glues, folds and seals either or both top and bottom flaps of shipping cases in one operation. Made in eight models to fit any production requirement. Hot air heaters dry the glue in one-half the time. Speeds up to 30 cases per minute.

TOP QUALITY CASE HANDLING EQUIPMENT

Whatever your packaging job, A-B-C has a production proved machine for you—case sealers, unloaders and unscramblers, side sealers, and hand gluers.



WRITE NOW FOR DETAILS AND FLOOR PLANS

A-B-C PACKAGING MACHINE CORP.
TARPON SPRINGS, FLORIDA

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WRIGHT Electronic WEIGHER

New WRIGHTRONIC provides an accuracy reliability previously unattainable at comparable speeds. It represents five years of engineering, development, test, and production.

Speeds up to 200 per minute.
Range three grams to 50 or more pounds.

At present, the element is available for custom applications requiring multiple installations and can be designed to be used with existing machinery.

New application inquiries are invited.

Wright Machinery Company
Subsidiary of Sperry Rand Corporation
Durham, North Carolina

Exhibitor: **Booth:**

West Instrument Corp. **316**
Exhibiting its line of temperature recorders, controllers, indicators, and accessory equipment, as used with heat sealing equipment and in the production of plastic films used in packaging.

Western Stoneware Co. **202**
Exhibiting various stoneware jars, jugs, and other specialty containers for the packaging of food and nonfood products, including many containers which have reuse properties.

Weyerhaeuser Timber Co. **1268**
Exhibiting its Ply-Veneer consisting of a single sheet of Douglas fir veneer overlaid on each face with kraft liner board. Also exhibiting the printability and decorative applications of Ply-Veneer in packaging.

Williamson Adhesives, Inc. **654**
Exhibiting its Tapemaker, a small compact adhesive applicator designed to manufacture pressure sensitive cellophane tape at the point of use.

Wolverine Paper Converting Machinery Corp. **650**
Exhibiting samples, brochures, and photographs describing and illustrating its line of flexographic printing presses.

Wrap-Ade Machine Co., Inc. **775**
Exhibiting for the first time its new adjustable unit packaging machine with conveyor feed, including quick change features for package size.

Wrap-King Corp. **754**
Exhibiting its Model B for accumulating and overwrapping cartons in heat-sealing cellophane, its Model P to overwrap various items in registered printed cellophane, and its Model CW to overwrap cartons in foil.

Wright Machinery Co. **1050**
Exhibiting for the first time its new Wright Junior Weigher, as well as its Wrightwrap for stacking, wrapping, and labeling cracker sandwiches. Its Junior Weigher uses Wright's Hy-Tra-Lec method.

Wyomissing Glazed Paper Co. **318**
Exhibiting a complete line of its flint paper in various colors, as well as its Press-Rite record label papers in colors.

York Tape Printers, Inc. **760**
Exhibiting its line of printed pressure sensitive tapes and dispensers, including the converting of pressure sensitive tapes for coding, production, inventory, and quality control.

Received too late to classify

Chain Belt Co. **750**
Exhibiting its Table Top, PlateTop and Case Conveying Chains, including its Nylon Table-Top chain.

The Cryovac Co. **836**
Exhibiting for the first time a new roll film for packaging smoked meat, cheese, poultry, fish and frozen meat. Also exhibiting a new spin-wrap machine for Cryovac.

Dudley Machinery Corp. **1264**
Exhibiting details of its systems for automatically putting empty or filled cans on filling or labeling lines, oriented, at a high rate of speed.

The Kendall Co., Polyken Sales Div. **865**
Exhibiting its Polyken waterproof tapes for packaging, protection, and sealing where a moisture-proof seal is required.

National Equipment Corp. **989**
Exhibiting its short case sealer, NCP overwrap machine, and the semi-automatic Speed Wrap unit.

F. J. Stokes Corp. **1274**
Exhibiting an operating display of tableting, mixing, drying, and granulating equipment used in the pharmaceutical and food industries.

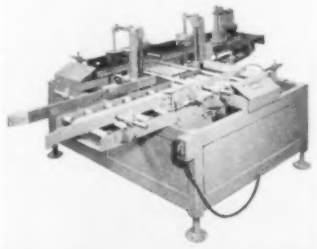
For more information circle No. 260 on Reader Service Card

Announcements of machinery and products

1. Beneath each announcement is a code number. As you select items on which you want more information, *note* this number.
2. Now, *circle* the corresponding numbers on the postcard, located inside back cover.
3. Next, *fill* in your name and address.
4. Then, *mail* the card — we pay the postage.

Case Imprinter

J. L. Ferguson Co. announces its new automatic case imprinter, which imprints name and contents on all four



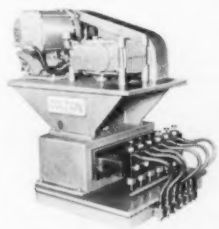
sides and also imprints a product serial number. Ferguson says the unit prints from one to eight lines within a printing range 11" high. Type may be graduated from ¼" to 1½" high. The unit imprints on two panels and two ends without manual positioning and prints serial numbers to six digits in figures up to 1½" high. Circle No. 1.

Foil-lined Corrugated Box

Aluminum Co. of America and Stone Container Corp. report development of a foil-lined corrugated box offering approximately 100% additional temperature control over a plain corrugated container. Called the Stone Sta-Temp container, the new box is made in one piece with a fold-over top of corrugated board laminated on the outside with .00035" Alcoa aluminum foil. Its developers say the box has higher heat reflectivity and greater moisture vapor resistance than a plain corrugated box. Circle No. 2.

Multiple Liquid Filler

Arthur Colton Co. announces four new models of its bench-type multiple liquid fillers, equipped with its new patented metering cylinder and valve assembly. Colton says this feature provides accurate volumetric filling to within less than one per cent vari-



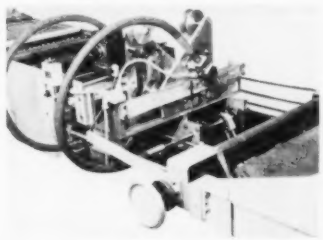
ation. The standard models have four, six, eight, and twelve filling nozzles respectively. Maximum fill rates vary from 160 to 480 fills per minute, with maximum fills varying from 4-fluid oz. to 0.32-fluid oz. Capacity per nozzle can be increased by manifolding. Circle No. 3.

Styrene Molding Material

Plastics Div. of Monsanto Chemical Co. reports development of Lustrex LHA Natural, a new medium impact styrene molding material offering greater clarity than high impact styrenes. Monsanto says it represents a compromise between the extremes of clarity and toughness, offering each of these properties. It has "good" clarity and "good" toughness, in contrast to Monsanto's general purpose materials having "excellent" clarity and "fair" toughness, and its Lustrex Hi-Test material having "fair" clarity and "excellent" toughness. Circle No. 4.

Transfer Leaf Printer

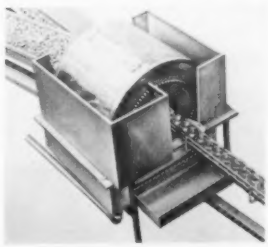
The Industrial Marking Equipment Co. announces its S-90 transfer leaf printer, a unit that attaches to bag making machines for automatic marking, dating or coding on polyethylene, pliofilm, cellophane, waxed paper, and similar materials that take hot roll leaf impression. It uses brass or steel type. Industrial Marking says it operates automatically, requiring no operator, and handles all combina-



tions of colors, letters, and numbers. Circle No. 5.

Automatic Filling Machine

Solbern Manufacturing Corp. reports development of its Tumble Filler, handling up to #10 cans or one-qt.

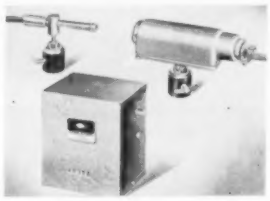


jars at speeds up to 300/min. Solbern says the tumble filling principle incorporates a rotating drum with food carrying buckets distributed around the inside of the drum which carries the food and deposits it gently by gravity into the container. It has an automatic spill-out tipper and vibrator to control volume and to allow food to settle in its container without bruising. Circle No. 6.

Photo Electric Controls

Standard Instrument Corp. announces

its Robot-Eye photo electric controls. These units count, inspect, perform traffic control, machinery safeguards,



and actuation, without contact with material or the equipment being controlled, according to Standard. Its miniature type construction permits installation in limited space. It operates from either a direct beam, reflection from the object being controlled, or from mirror reflection. Circle No. 7.

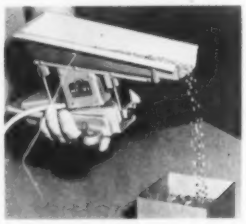
Box Stapling Equipment

Container Stapling Corp. announces its Model TAP-2, a unit developed for closing overwrap cartons, long

narrow slotted and closing cartons, and telescope cartons. It has an automatic mechanical trip, no electrical connections, and a valving arrangement to provide fully automatic lubrication. It operates up to 400 staples a minute, depending on operator proficiency. Circle No. 8.

Vibratory Feeder

Eriez Manufacturing Co. announces its FE 1/4, a new model Hi-Vi electro-permanent magnetic vibratory



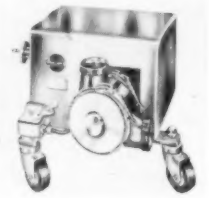
feeder. The new model (10¾" by 5" by 6⅛" and weighing 7 lbs.) is designed for accurate feeding operations where relatively small amounts of materials are involved, according to Eriez. It operates directly off an AC line and requires no rectifier. A remote control operating as a simple rheostat to vary the voltage across the unit regulates changes in the feed rate. Circle No. 9.

Flexible Vinyl Film

Harte & Co. announces its Wataseal FD-27, a non-toxic vinyl film for use with food. Harte says it has been accepted by the U. S. Food and Drug Administration and says that the material has an extremely low taste and odor level. It is heat sealable. Circle No. 10.

Filler Pump

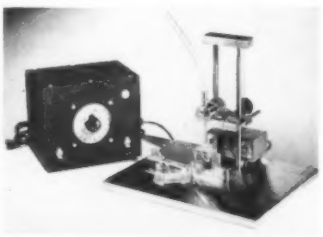
Anderson Bros. Mfg. Co. announces an improved Model 520 pump for products such as cottage cheese and



ice cream. Anderson says the new pump is self-priming, is a positive displacement pump, delivering from 10 to 134 lbs. of product a minute, or 75 to 1000 gal. of ice cream an hour. It has a 1-hp motor and its inlet and outlet accommodate 3" sanitary pipe. Circle No. 11.

Semi-Automatic Filler

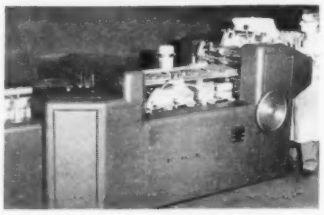
North American Electric Corp. announces a new semi-automatic liquid filler for small bottles and containers.



The position of the valve spout assembly over the container opening is adjustable up and down, backward and forward. Fill is controlled by a timed flow and the timer is adjustable to 1/60th of a second, according to North American. It has a threadless sanitary valve of stainless steel. It may be gravity fed or pressure fed. Circle No. 12.

Multiple Packaging System

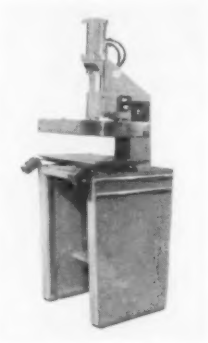
Robert Gair Div. of Continental Can Co. announces its Jak-Et-Pak multiple packaging machine. It handles cans ranging from 2⅝" to 7¾" high and from 2⅛" to 3¾" in diameter. It packages any number of cans, preferably two abreast, up to the capacity of the 24½" by 10⅞" blank, and normally operates at a speed up to 120 carriers a minute with an output of 720 cans/min. in six-packs, according to Gair. It handles crown



top and spout top cans, as well as flat top ones, because the wrapping of the carton blanks around the cans is from the top downward. Circle No. 13.

Blister Packaging Machine

Tronomatic Machine Mfg. Corp. reports development of a machine to seal narrow flange blisters to coated



cards in multiple units. Tronomatic says it seals any number of packages which fit on a 14 by 22 area every five to ten seconds, the cycle being dependent on card thickness. There is a two hand control switch. The machine cycles automatically. Circle No. 14.

Roll Storage Rack

General Machinery Corp. announces its Model W Rol-A-Way paper rack for flexible packaging materials to

protect rolls from damage due to

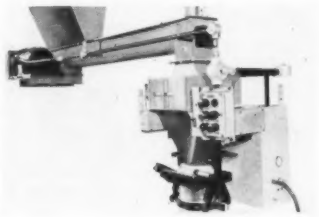
scuffing, nicks, and mishandling. Mounted on casters, it has a capacity of 1000 lbs. Circle No. 15.

Pressure Sensitive Teflon

General Plastics Corp. announces availability of pressure sensitive Teflon cloth. A pressure adhesive backing protected by a strippable paper is attached to the Teflon-impregnated glass fabric. It is developed to permit easy application of Teflon to guides, slides, chutes, rails, and other equipment hampered by sticking and build-up. Circle No. 16.

Automatic Gross Weigher

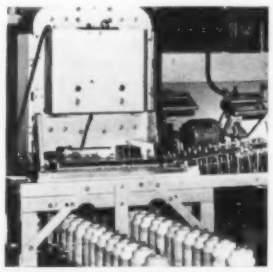
Richardson Scale Co. reports development of a newly designed gross weigher which has push-button con-



trol, automatic feed and bin level switches, and a choice of power feed mechanisms. Known as the E-52, this unit feeds directly into a bag suspended from the weigh beam. Material is continuously in motion until it falls into the bag. It handles 25 to 100-lb. bags at speeds of five or six bags/min. Richardson says accuracy is to one or two oz. The scale has a headroom requirement of 3', excluding feed arrangements. Circle No. 17.

Aerosol Valve Inserter

Stanley Home Products, Inc. announces a new valve feeder and inserter to apply valves to aerosol cans



at speeds up to 120 containers/min. It handles 6-, 12-, and 16-oz. aerosol cans, has a no can-no valve device, and requires only two people to feed valves, according to Stanley. It is adaptable to handle valves with and without dip tubes. Circle No. 18.

Heat Sealing Tape

G. T. Schjeldahl Co. announces its GT Tape, a thermoplastic polyester resin tape developed for heat sealing Mylar polyester film and a variety of other materials. It is available with and without Mylar backing, and comes in a wide range of widths and gauges. Circle No. 19.

Electronic Weigher

Wright Machinery Co. announces development of an electronic weighing element for commercial and military use. This unit, the Wrightronic, functions at speeds up to 200 a minute and has a weight range of from 3 grams to 50 or more lbs. Wright says that it has an accuracy, reliability, and speed previously unattainable from beam scales or other mechanical weighing elements. The company developed this weigher to provide even greater accuracy than its own patented electric hydraulic method could provide. Circle No. 20.

Laminating Adhesive

National Adhesives Div., National Starch Products Inc., reports development of Resyn 76-3963, a new adhesive to bond Pliofilm, saran, and polystyrene to foil, as well as Pliofilm to saran, and polyester film to Pliofilm or saran. National says its new adhesive is a clear, amber colored synthetic rubber cement that contains approximately 33% solids. It recommends a dilution to approximately 20% solids for lamination work, with a coating weight of 3 lbs. per ream for film to foil, and 4 lbs. per ream for film to film. Circle No. 21.

Case Opening, Forming Machine

Schroeder Machines Corp. announces a new case opening and forming machine that automatically selects a case from its magazine, advances, opens, and forms it, and folds in the bottom flaps. The unit is entirely pneumatically driven, according to Schroeder. The producer has a patented glue system available for sealing case bottoms. It is custom-built to case size. Circle No. 22.

Sales Executive Available

A man who can organize, train and direct a sales force, selling a product, package, or machines and related equipment.

He has 25 years of experience in sales, sales development, machine development, as well as a complete background of sales promotion and advertising.

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4. Then, *mail* the card — we pay the postage.

Can Code Marking

Triple-E Engineering Co. has an eight-page bulletin reviewing current methods of marking cans and describing its new Data-line coding method, by which variably spaced scratches made on the cans provide the code information. It tells how the 15 spring-loaded carbide blades mark the metal cans with a series of inconspicuous scratches. Circle No. 101.

Counting Machine

Delta Engineering Corp. has a one-page leaflet describing its Model B universal counting machine, which has a feeding rate of 120 ft./min. Hardware and other typical items which the machine counts are illustrated along with the machine itself. Circle No. 102.

Packaging Consultation

Container Laboratories, Inc. has a 16-page illustrated booklet describing its consulting services, research and development, design and engineering, testing, and special studies undertaken. Illustrations show difficult or unusual packages and equipment developed and actual testing operations and methodes. A list of clients and the biographical sketches of key personnel are also included. Circle No. 103.

Tablet, Capsule Counter

Lakso Co., Inc. has a one-page leaflet illustrating various models of its tablet and capsule counting equipment. These are listed according to the bottles per minute per 100 count, ranging from 30 to 200. Circle No. 104.

Cracker & Cookie Packaging

Battle Creek Packaging Machines, Inc. has a folder enumerating specifications in tabular form of eight of its machines, particularly suited to wrapping and packaging crackers and cookies. Floor space, sizes handled, paper specifications, and sizes, speeds per minute, types of fold, are enumerated. Circle No. 105.

Tackers And Staplers

Fastener Corp. offers an illustrated folder describing its complete line of Duo-Fast tackers and staplers. The six-page bulletin describes and shows the use of a staple gun, hammer tacker, outward clinch stapler, air pliers, and portable footpower stapler. These staple items ranging from shipping tags and corrugated boxes to railroad box car linings. Circle No. 106.

Spray Coating Machine

Paper Machinery Corp. has a four-page folder describing its Series C400 automatic high speed spray coating machine for the plastic coating of food containers and paper cups. It handles from 90 to 150 or more cups or containers a minute. Illustrations show details of its feeder, conveyor, spray booth, drying-baking oven, discharge station, and electrical controls. Specifications are enumerated. Circle No. 107.

Addressing Equipment

Weber Marking Systems, Div. of Weber Addressing Machine Co., Inc., offers a new 16-page booklet entitled "How to streamline your shipment addressing for speed and economy." The booklet describes seven systems for fast, economical addressing of labels, tags, and cartons. Besides explaining and illustrating just how the systems work, it has a detailed check list of questions to ask in evaluating a company's shipment addressing operation. Circle No. 108.

Sensory Director Systems

Sensory Inc. announces Bulletin No. 571, a four-page illustrated folder describing its electro-magnetic controls including directors and sensors. It describes the rectifier and filter, safe-start network, cycle sequence control, pulse-forming network, function relays, counters, interlocks and trouble shooting, static switching systems, and a complete Director. Circle No. 109.

Feeding, Counting Machinery

U. S. Engineering Co. offers its latest brochure on its Feed-A-Matic feeding, orienting, and counting equipment which handles up to 200,000 items per hour. It handles parts ranging from screws, nuts, and bolts, through candies, balls, and rubber plugs, to toy parts, tablets, pills, and capsules. Production rates for feeding and counting per minute are included. Circle No. 110.

Teflon Usage

Chicago Gasket Co. has catalog information and other details on its Korda-Flex Teflon product which combines the elements of fiberglass and Teflon, and is available in thicknesses from .003" to .005". The material is available in tapes, sheets, and rolls up to 38" wide. Circle No. 111.

Preformed Packaging

Vanant Co., Inc. has a new four-page folder describing its Sus-Rap preformed fibre board wrap around packaging material. Illustrations show its applicability to porcelain enamelware, fixture glass, television and radio sets, clocks and instruments, and other products. Structural details of the slot and bridge construction are enumerated. Circle No. 112.

Flexographic Press

Champlain Co., Inc. has a four-page

bulletin describing its new flexographic press for multicolor printing on board, plastic, cellophane, or paper. Press sizes range from 20" to 44" and width from 21" to 45" with printing width from 20" to 44". Major units described include drive mechanism, plate-cylinder, inking system, and dryers. Circle No. 113.

Portable Bag Closer

Union Special Machine Co. offers a machine circular describing its Class 2100 portable electric bag closer. This unit weighs 10½ lbs., has a top feed, and closes bags of cotton, burlap, jute, multiwall and laminated paper. It produces stitch types 401 or 101. It has a safety protected mechanical thread cutting device. Circle No. 114.

Bulk Packaging

Titan Pallet Co., Inc. has a circular describing its T-Pack developed to hold up to one ton of product depending on material density. Its typical size is 35" by 35" by 48". It serves as an expendable self-palletizing container for bulk and granular products. Circle No. 115.

Resin Adhesives

Paisley Products, Inc. has Bulletin No. 23 describing its resin adhesives. This 12-page booklet contains details of adhesive structures, methods of manufacturing, properties available, methods of application, and contains a chart enumerating industrial uses of resin adhesives. There is a list of 17 specific suggestions for using these adhesives. Circle No. 116.

Weighing Equipment

The Exact Weight Scale Co. has a four-page bulletin describing its precision weighing machine for plastics injection molding. Weight bucket capacity varies from 32 to 50 oz. and hopper capacity is 100 lbs. Details of the automatic plunger position control are included. Circle No. 117.

Pressure Sensitive Labels

Avery Adhesive Label Corp. has a two-page leaflet illustrating and describing its Perma-grip pressure sensitive labels. Specimen labels, such as for meat products, are attached to the sheet. Illustrations show details of labeling operation. Circle No. 118.

Printed, Die-Cut Tape

Minnesota Mining and Manufacturing Co. has a new three-page foldout brochure illustrating and describing uses and applications of its printed and die-cut pressure sensitive tapes. The brochure reviews details of application for unitizing sets or groups of cartons, cans, or other items. Types of die-cut and details of applications are enumerated. Circle No. 119.

Collapsible Tubes

The Sheffield Tube Corp. has a 16-page booklet describing its products and services, including standard sizes and capacities, standard tube nomenclature, details of tube measurement, and types and uses of openings. Circle No. 120.

Plastic Bottles & Jars

Imco Container Corp. has a 24-page catalog showing its line of stock sizes and designs of plastic bottles and jars. Illustrations give capacities which range from ½ oz. to 16 oz. and dimensions of each style of container. Also illustrated are spray and dispenser plugs for blown bottles and fitments for injection molded bottles. Circle No. 121.

Capping Equipment

Ball Brothers Co. has a four-page brochure on their new Grip-Twist vacuum cap and capping equipment. Caps are available in 38 to 89 m/m sizes. The equipment applies a hermetic seal yet is easily removed. A unique exhaust system removes all excessive steam, assuring excellent operator visibility. Circle No. 122.

Bag Closer Maintenance

Dave Fischbein Co. offers a folder listing its cleaning solvents, lubricants for bag sewing machines, and thread lubricants. Circle No. 123.

Hot Plates

Miller Wrapping and Sealing Machine Co. data sheet explains features of its hot plates with a remote control thermostat. It permits close heat control for heat sealing such films as saran and Pliofilm. This eliminates the need for special plate covers, thus increasing wrapping speeds up to 30%. Two models are available in sizes 5" by 10" and 10" by 10". They operate from 150 to 350 degrees F. Circle No. 124.

Net Weighers

Pneumatic Scale Corp., Ltd. Bulletin 122 explains the pressure weighing principle of the Pneumatron net weigher, with detailed specifications. Various models handle end opening or side opening cartons within a speed range of 40 to 130/min. Circle No. 125.

Film Wrapped Luncheon Meats

The Dow Chemical Co. Bulletin PL 328-1254 devotes 16 pages to a thorough explanation of luncheon meat packing techniques with Saran Wrap. Subjects include hand wrapping, semi-automatic, and fully automatic wrapping, link packaging and labeling. Circle No. 126.

Machine Guards

Design Fabricators, Inc. brochure provide pictures of packaging machinery installations showing how the "Uniform" machine guard improves packaging line appearance. Guard panels are rigid and free-standing, not attached to equipment. No tools are required to remove panels for machine maintenance. They are fabricated of 14, 16, 18 and 22 gauge cold-rolled steel and finished in baked enamel or stainless steel. Circle No. 127.

Bottle and Can Packers

Standard Knapp Div. of Emhart Mfg. Co. offers a bulletin which outlines features of the 830 packer series. These machines automatically pack filled bottles, jars, or cans into partitioned corrugated, solid fibre, or wood shipping cases. The booklet contains pictures and engineering drawings of this equipment. Circle No. 128.

Granular Pouring Device

U. S. Metered Container Corp. has a bulletin outlining the features of the X-Akway. This is a metering device fabricated into a folding carton enabling the user to pour free flowing dry products in premeasured amounts, from a teaspoonful to a cupful. Minor adjustment to filling machinery is necessary to handle this type of package. Circle No. 129.

"Dial" gummed tape electrically

The new Marsh Dial-Taper is real news to users of gummed tape. Dispenses all kinds, in widths to 3", electrically. Select your length on the telephone-type dial, dial it, and out it shoots moistened with warm water. Sticks instantly. Saves 1/5 on tape, often more in man-hours.

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DT-11

MARSH STENCIL MACHINE COMPANY
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Tag and Label Imprinter

The Monarch Marking System Co. describes its Tickopres, a tag and label imprinting machine. Making clear impressions, it eliminates hand writing and rubber stamping. The machine imprints from 130 to 150/min. on various weight materials, and can be adapted for imprinting string tags in gangs. Circle No. 130.

Rotary Fillers

International Filling Machine Corp. data sheet lists specifications for two models of its vacuum rotary filling machines. The 24 head machine fills 96 qts./min., with speeds up to 240/min. for smaller containers. The 36 head filler handles 45 gal./min., 60 half-gal./min., or 125 qts./min. These units can be modified to fill plastic containers. Circle No. 131.

Laminated Textile Sacks

Chase Bag Co. offers a 16-page booklet on laminated textile shipping sacks suitable for heavy duty packaging of products that are alkaline, acidic, hydroscopic, deliquescent, abrasive, or contain grease or oil. Various combinations of plies and laminating adhesives are described and the particular packaging problems various combinations will solve. Circle No. 132.

Cushioning Material

Armour Curled Hair Div. has an eight-page brochure showing how rubberized hair is used for packaging instruments and similar products. Illustrations show typical die-cut, laminated, and molded Hairflex packages, and a chart showing load compression curves used to estimate degree of protection needed for any given product. Circle No. 133.

Plastic Snap-Cap

J. Mart Co. reports development of a plastic snap-cap for leakproof sealing of collapsible tubes. It has two halves, with the snap-cap's lower portion containing a dispensing nozzle which permanently fits on the tube. The upper half is connected to it by a plastic hinge. This lets a user flip the cap without its separating from the tube. Circle No. 134.

Foil Paper, Board

The Gummed Products Co. has a sample booklet that includes swatches of eleven of its laminated food papers and boards. These are available in a wide range of standard and special colors with special types of gumming, including heat seal properties. Circle No. 135.

Contour Packaging Machinery

Plastic Packaging Machinery Co., Inc. announces its Model 30-0 machine for producing plastic skin packages and blister packages for contour type packaging. This machine will handle cards up to 20" by 24" and packaging box depth is adjustable from 1" to 4". Bulletin No. 30-0 is available. Circle No. 136.

Gummed Tape Usage

Central Paper Co. has a ten-page booklet entitled "Why Gummed Tape Sticks." It discusses the principles of tape adhesion, shows why improperly applied tape leads to poor adhesion, and discusses the correct way to apply tape and take care of taping equipment. Circle No. 137.

Human relations on the packaging line

(Continued from Page 34)

to be the best experience, since with the change in attitude of the superintendent, the line employees also became more tolerant and cooperative.

A case at hand for direct supervision can best be illustrated by the dynamic worker who is promoted to foreman or forelady. It is well to realize that the best worker does not always make the best supervisor. Our philosophy in training supervisors we take from the lines is based on the development of realizing that the prime function is to get the job done, not to do it.

Also, a point in development is to have the new supervisor learn that all people are not dynamic, and that each has different views concerning how a job can best be accomplished. For these reasons in development, we stress the need for firmness with respect, supervision with tolerance, direction with understanding, as the way to good supervisory relations. First line supervision is the line at which management must be potent in good human relations if it is to gain the maximum in efficiency.

First Line Supervision

The first line supervisor is the immediate representative of management to the rank and file employees. The forelady or foreman can do much to interpret the company policies, objectives and considerations toward good loyal employee attitude with understanding, tolerance, respect, and cooperation in working out employee suggestions, differences of viewpoint, and just plain gripes. Too often there is a tendency to interpret suggestions and differences of opinion as gripes, when consideration and implementation of employee views can result in increased efficiency.

The first line supervisor, as we have noticed, has the function of "getting the job done." This does not imply that he or she does nothing but assign work to others. It is equally important that this line of supervision should be able to perform the various tasks — occasionally stepping into a line to assist in getting the job done, if for no other reason than to demonstrate to the line employees the capability.

Also, it is essential that each new employee receives adequate personal instruction; the first line supervisor should be the most capable instructor.

Another major function of the first line supervisor is tolerant understanding of grievances, employee attitude and varying capabilities. Through this understanding there will result a better assignment of individuals to specific job with the employees' interest, as well as that of management, in mind. Nepotism is one thing that the first line supervisor must avoid. Similarly, favoritism can be the downfall of a good supervisor, because such will generally result in distrust, unfairness, and negative attitudes. These usually result in development of continuous problems for the supervisor himself.

I must make it clear, however, that firmness is essential. But firmness with fairness more often than not will gain greater respect and willing attitudes.

A sound practice in good human relations on the packaging line is to accept the philosophy that management's responsibility is to all its employees; to respect each as equal — both as an employee and a human being. This practice I am sure will return dividends in increased efficiency, lower cost, and will help to make layout, systems, and method changes successful that might otherwise be discarded as impractical or problematical.

Need a copy of some Package Engineering article?

When you want your own copy of a particular article appearing in Package Engineering, simply let us know. If you will write us on your letterhead asking for that article, we shall send you a copy of it — with our compliments. This way, you don't have to clip your copy to get the article.

CLASSIFIED ADVERTISING

Our classified advertising section is intended for use by those wishing to buy or sell used packaging equipment, to employ packaging personnel, seek such employment, offer or seek business opportunities. It is not available for general advertising. Terms: Cash with order. Rates: Up to 60 words, $10.00. If boxed, $20.00. Up to 120 words, $20.00. If boxed, $40.00. Up to 180 words, $30.00. If boxed, $60.00.

Circulation this issue in excess of 35,000

FOR SALE

For Sale — Packaging machine, Battle Creek Model BT30 and Bond M L Dual Filler. Fills, seals folding boxes, both bottom and top. Continuous flow principle. Quickly convertible. Wide range of boxes up to 10 inches in height, 30-40 per minute. Price new machine $15,120.00; this used one $5,000.00. Reply to W. J. Wittekind Company, 1041 Richmond Street, Cincinnati 3, Ohio.

HELP WANTED

Packaging Engineer — Position for young engineer with two to four years experience with packaging machinery, package design and material selection. Assignments are on project basis and include methods, costs and coordination. In reply include experience, education, salary and age. Write to W. H. O'Shaughnessy, Johnson's Wax, 1525 Howe Street, Racine, Wisconsin.

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What we think

The art of managing the packaging function is probably the major piece of unfinished business facing us today. Obviously the technical and operational phases of packaging are never finished because they are constantly changing. The only thing we are sure of is change. But in spite of the experience of enlightened companies, much of which has been well documented, the managerial art lags behind the technology of our field.

Adequate communication lines important

Even companies with clearly crystallized approaches to packaging management admit that they do not have the answers. They readily concede that their techniques are tentative. For example, as elemental a decision as whether to use a packaging committee, even in companies having long experience with such committees, is often an open question.

What makes the management of packaging so nebulous is that you are dealing with people and opinions rather than with mechanical or physical things. It would seem the keys to the management of packaging are better coordination and better communication within the company structure. The reason for this is that a packaging project cuts across so many departments and functions within a company that the only way of consummating it successfully is to communicate it adequately to everyone involved.

Careful timing, good salesmanship needed

It is extremely difficult for those unacquainted with the subtleties of modern management to realize that you can't affirmatively make anybody do anything. An impressive title and a lofty location on an organization chart fall far short of being the tools by which to persuade or force others to carry out a program. It is true that you can make people at all levels get to work on time and go to meetings and participate physically in packaging projects, but it takes a lot more to win their wholehearted support and cooperation.

In other words, a man in the middle or upper management area charged with carrying out a packaging project must sell his program to his subordinates as well as those on higher levels. Unless they buy it, it falls short of attainment.

This places a premium on better presentations by everyone concerned. Assuming that different departments must be sold on the merits of making a particular package change, the important thing is that those spearheading the project make an adequate and persuasive presentation of it to others.

On top of all this, those managing the packaging function must develop an acute sense of timing. It is not just a question of bringing the necessary departments and individuals into the picture, but bringing them in at the right time. If you bring some people into the project too early, it merely confuses them, and if you bring others in too late, they are not forewarned, are taken by surprise, and the project may suffer. Many a manager who has tried to bull through a project with a minimum of participative consultation has had ample opportunity to reflect on his hasty move while, in effect, picking up the pieces from the floor.

Facetious as this may seem, it happens to be substantiated by many. Perhaps the real answer to it all is for those charged with handling a packaging project to be thoroughly familiar with all its details. Many a successful manager never presents a project to his superiors or to his peers until he is fully *prepared*.

Can you make others understand you?

In short, aside from his positive presentation, he has an answer to every possible objection that may arise. Further, all this assumes a reasonably adequate job of personal salesmanship in presenting a project to an assembled group. Some of our most technically qualified packaging people do not do very well in a meeting because they overlook the fact that others do not have the same grasp of the situation they do.

In a nutshell, there are two approaches to managing the packaging function: One is the formal structure and procedure as outlined by organization chart manual and memorandum. The other is the actual, although informal and unwritten way, predicated on the interplay of human relationships.

Those who think they are being buffeted about unnecessarily by the winds of conflicting opinion might well examine their own approach to see if they have clearly and articulately presented their views to others—and might ask themselves if they are adequately conciliatory to the differing views within their company. Explorations along this line should lead to real progress in the management of packaging.

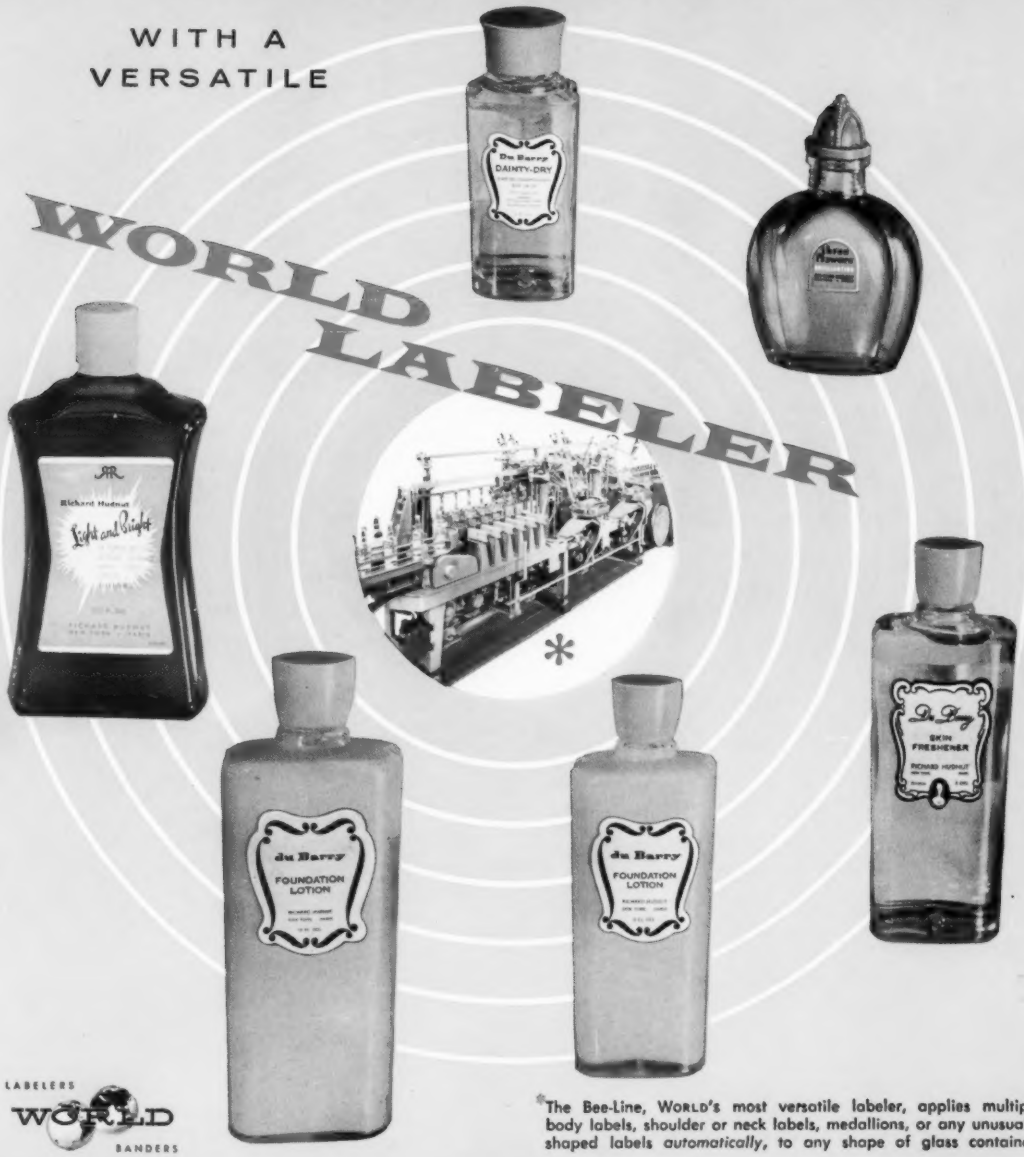
Bruce Holmgren

Editor

CHANGE PACKAGING ANY TIME

WITH A VERSATILE

WORLD LABELER



LABELERS WORLD BANDERS

*The Bee-Line, WORLD's most versatile labeler, applies multiple body labels, shoulder or neck labels, medallions, or any unusually shaped labels *automatically*, to any shape of glass container.

Is your packaging being outmoded today – will it continue to lag behind future style trends – because replacing your inadequate labeling machine would be costly.

You wouldn't need to incur this expense, if your equipment were versatile WORLD Labelers. These machines settle *once and for all* your needs for glass package labeling. They handle any size or shape of glass container or label, neatly, accurately, economically. No matter what changes are demanded by the trends of modern packaging, you're ready and set with WORLD Labelers.

There is a type or model WORLD Labeler that will give you high-quality, low-cost labeling according to your needs. Economic has built more automatic labelers than any other company in the world, and is the *only* company manufacturing a complete line. Ask the WORLD Engineer.

ECONOMIC MACHINERY COMPANY 60 Fremont Street, Worcester 3, Mass.
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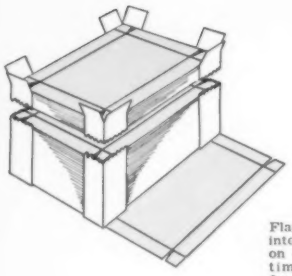
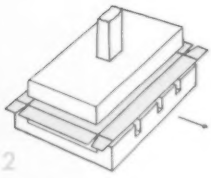


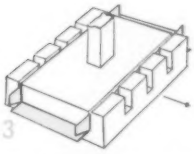
1

Flat tray blank is fed into accurate position on die-form, by Jones time-tested carton feeding method.



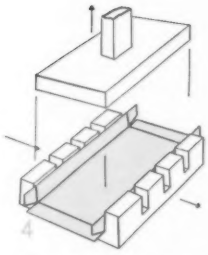
2

Each blank in its individual die-form moves intermittently but continuously through the machine.



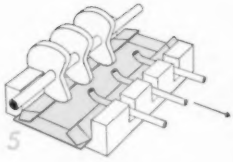
3

At the first station the overhead tamp presses the tray blank positively into the die-form.



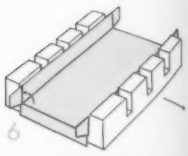
4

Tamp withdraws, leaving tray formed with true 90° side-walls.



5

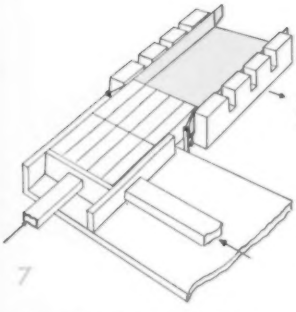
At another station side-walls are broken approximately 180° to assure minimum of side-wall bulge after tray leaves die-form.



6

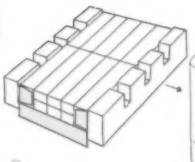
End-wall is turned down to loading position; side-walls resume 90° position.

...with 6 unique advantages



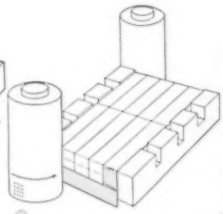
7

Multiple load assembler (partially shown) inserts load while gates hold side flaps open.



8

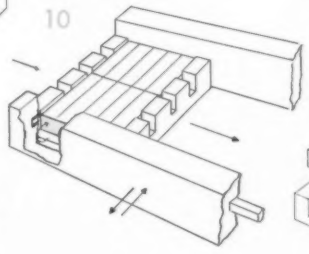
Side flaps closed by plow into position for glue application.



9

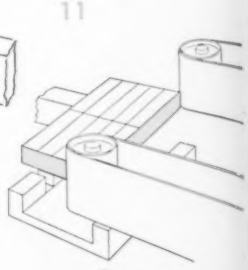
Jones trouble-free intaglio glue applicator is scraped clean of continuously circulating glue, retaining glue in hole pattern only. Tray flaps pressed against cylinder holes remove glue by suction and retain it in pattern of dots.

Glued end-wall of tray is plowed into contact with flaps prior to entering pressure plates. Pressure bars retract as die-form and tray move between stations, re-apply pressure at each successive station.



10

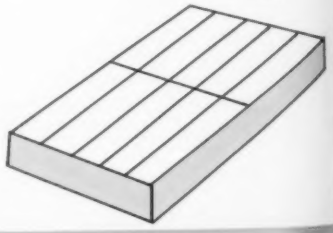
Tray is elevated out of die-form, enters continuously moving discharge belts which maintain sealing pressure until loaded, sealed tray is discharged.



11

- Applies the standard Jones carton feeding method to tray handling.
- Pre-breaks carton side-walls 180° – reducing tendency to bulge. This reduces waste at wrapping machines by presenting more uniform package to wrap.
- Longer sealing time under pressure than with other tray forming machines.
- Lowers cost by elimination of double side-wall trays.
- First and only machine to combine automatic tray forming with automatic loading of uniform shaped loads.

  Thus it makes possible the adaptation of tray-type package to products now in cartons or overpack cartons.
- Speed – approximately 60 trays per minute.



For more information circle No. 263 on Reader Service Card

R. A. JONES & CO., INC.

P. O. BOX 485, CINCINNATI, OHIO

Cartoners — Case Packers — Soap Presses

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